APPENDIX A

TRAFFIC STUDY

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For

GREGORY CANYON LANDFILL

in the County of San Diego

Submitted By:

Darnell & Associates, Inc.

Revised March 21, 2007
(Previous February 21, 2007)
(Previous June 16, 2006)

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EXECUTIVE SUMMARY

The proposed Gregory Canyon landfill is located approximately 3.5 miles east of Interstate 15 on State Route 76. The Gregory Canyon site is planned to contain approximately 30 million tons of refuse with an operating life of about 30 years. Maximum trip generation for this site was estimated at 2,085 daily trips, which includes truck traffic converted into passenger car equivalents (PCEs).

The project access will provide for acceleration/deceleration lanes and adequate shoulders along SR-76 for approximately 1,700 feet. This improvement will also assure a minimum sight distance of 1,000 feet in both directions. Vegetation or structures will not obstruct this minimum sight distance.

An update of Accident Data was conducted and showed that while the traffic volumes have increased significantly on SR-76, accident rates per million vehicle miles traveled are consistent with previous studies. Based on the comparison of primary collision factors, the data continues to show that alcohol, driver violations, and excessive speed are the major causes of accidents on SR-76. The data does not show an increase in volumes or trucks is related to the accident rate, which is consistent with previous conclusions.

Existing conditions traffic analyses determined that all study intersections operate acceptably with traffic signals. No deficiencies at intersections were reported.

A peak hour analysis of SR-76 was conducted in accordance with Congestion Management Program (CMP) Guidelines throughout the operation of the facility from 7:00am to 6:00pm. The peak hour analysis demonstrated LOS D conditions along SR-76 from I-15 to the project site within this time frame. With the addition of project peak hour traffic determined that the project has a direct impact on SR-76 between the hours of 2pm-5pm. As mitigation for this impact, it is recommended that the project reduce its peak hour truck traffic within the hours of 2pm-5pm. This mitigation is easily monitored by the facility as it records all traffic and tonnage throughout the day.

West of Highway 395, SR-76 reports a deficiency; however, the project does not meet County significance criteria for direct impacts and is not required to perform mitigation on this segment.

Other known projects which significantly affect this corridor were identified and incorporated into the near term analysis where appropriate. Impacts at intersections due to other project traffic were identified at the SR-76/Interstate 15 Northbound Ramp. This is the result of cumulative project contributions and requires near term improvements with or without the proposed project. The project is considered to have a cumulative impact on this intersection and will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate all cumulative and future circulation needs.

State Route 76 reports deficiencies with the addition of cumulative projects and the proposed project. The project will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate all cumulative and future circulation needs along State Route 76.

A year 2030 traffic projection was conducted using the County of San Diego's General Plan 2020 Model, Board Alternative Map, Existing Plus CIP Network, for generating traffic volumes and based on the SANDAG Series 10 model. Analysis was conducted for a "no build" (or existing) condition. Year 2030 "no build" analyses report failing level of service on SR-76 and its intersections from Highway 395 to I-15. The project will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate all cumulative and future circulation needs.

I-15 between Pomerado Road and Carmel Mountain Road reports a deficiency; however, the project does not meet significance criteria for direct impacts and is not required to perform mitigation on this segment. This deficiency will continue in the Year 2020 Buildout With and Without Project Condition; however, the project does not meet significance criteria for direct impacts and is not required to perform mitigation on this segment.

Off-site circulation analysis concluded recycled water truck trips to Olivenhain's water treatment facility can be accommodated within future conditions circulation systems and can adequately interface with the Maranatha School development, which shares an access road.

SECTION I - INTRODUCTION & METHODOLOGIES

PURPOSE OF STUDY

The final environmental impact report for the Gregory Canyon landfill was certified and approved on February 6, 2003. The adequacy of the FEIR was subsequently challenged in the case filed before the Honorable Michael Anello entitled Riverwatch v. County of San Diego Department of Environmental Health, et al.; case number GIN038227. On October 3, 2005 the Court issued a final minute order finding most of the FEIR adequate and in compliance with the California Environmental Quality Act but also noting three deficiencies. One of the deficiencies noted by the Court required the FEIR to evaluate a 2003 County tribal traffic study known as the 2003 Traffic Needs Assessment Study. The Court required this traffic study to be evaluated in conjunction with traffic studies completed for the project.

Although the judgment and writ issued by Judge Anello did not require a new traffic study, the LEA subsequently determined that a new traffic study was appropriate given changes to existing traffic conditions on area roads since the FEIR was certified in February 2003 and new pending projects having the potential to impact area roads being used for the project. In addition, the traffic study has been updated to evaluate project traffic associated with the use of recycled water being provided to the project from the Olivenhain Municipal Water District. This new traffic study examines existing conditions on area roads, project traffic impacts, and cumulative traffic impacts based upon both pending projects and year 2030 expected cumulative conditions. This traffic study also evaluates the accuracy and reliability of the 2003 Traffic Needs Assessment Study as requested by the Court in its October 3, 2005 minute order.

PROJECT DESCRIPTION

This transportation report has been prepared to evaluate the traffic related impacts of the proposed landfill in northern San Diego County. The planned landfill will be located in Gregory Canyon, approximately 3.5 miles east of Interstate 15 (I-15) on State Route 76 (SR-76). Figure 1 depicts the location of the project in a regional context. The Gregory Canyon site is planned to contain about 30 million tons of refuse with an operating life of approximately 30 years. Figure 2 depicts the proposed project site plan.

This traffic study was first undertaken by Darnell & Associates, Inc., in January, 1995, to address the impacts related to the proposed landfill. Supplemental traffic studies were completed in 1999, January 2001 and June 2002. This new traffic study was completed in June 2006 and revised in February 2007. Traffic studies for cumulative projects were obtained and updated as they were introduced into the study area. Traffic data collection was updated for each revision as previous iterations became obsolete. This revision includes the latest information reflected in cumulative projects. New traffic counts reflect 2005 data, collected in March to include school activity and typical travel behavior within the study area. The project size and capacity has generally remained constant through this process, while the California Department of Transportation (Caltrans) reviews alternative alignments for SR-76. The ultimate alignment, once selected, will not effect the conclusions and recommendations made in this report regarding traffic capacity. However, ultimate alignment may, in fact, reduce the safety concerns discussed later in this report.

CONGESTION MANAGEMENT PROGRAM

Based on the approval of Proposition 111 in 1990, regulations require the preparation, implementation and annual updating of a Congestion Management Program (CMP) in each of California's urbanized counties. In 1991, San Diego County adopted their initial CMP statutes. One required element of the CMP is a process to evaluate the transportation and traffic impacts of large projects on the regional transportation system. That process is undertaken by local agencies, project applicants and traffic

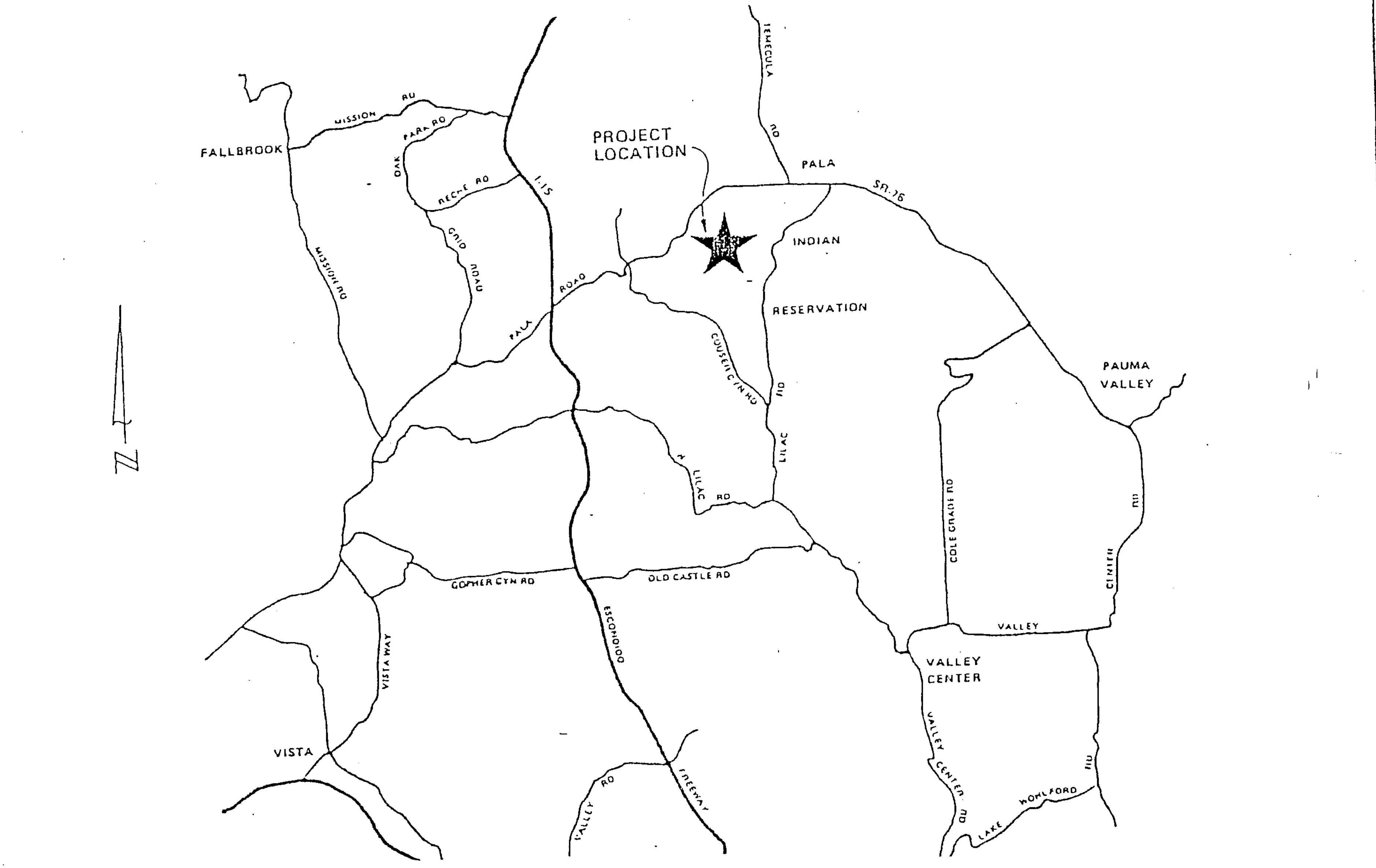

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FIGURE 1
VICINITY MAP

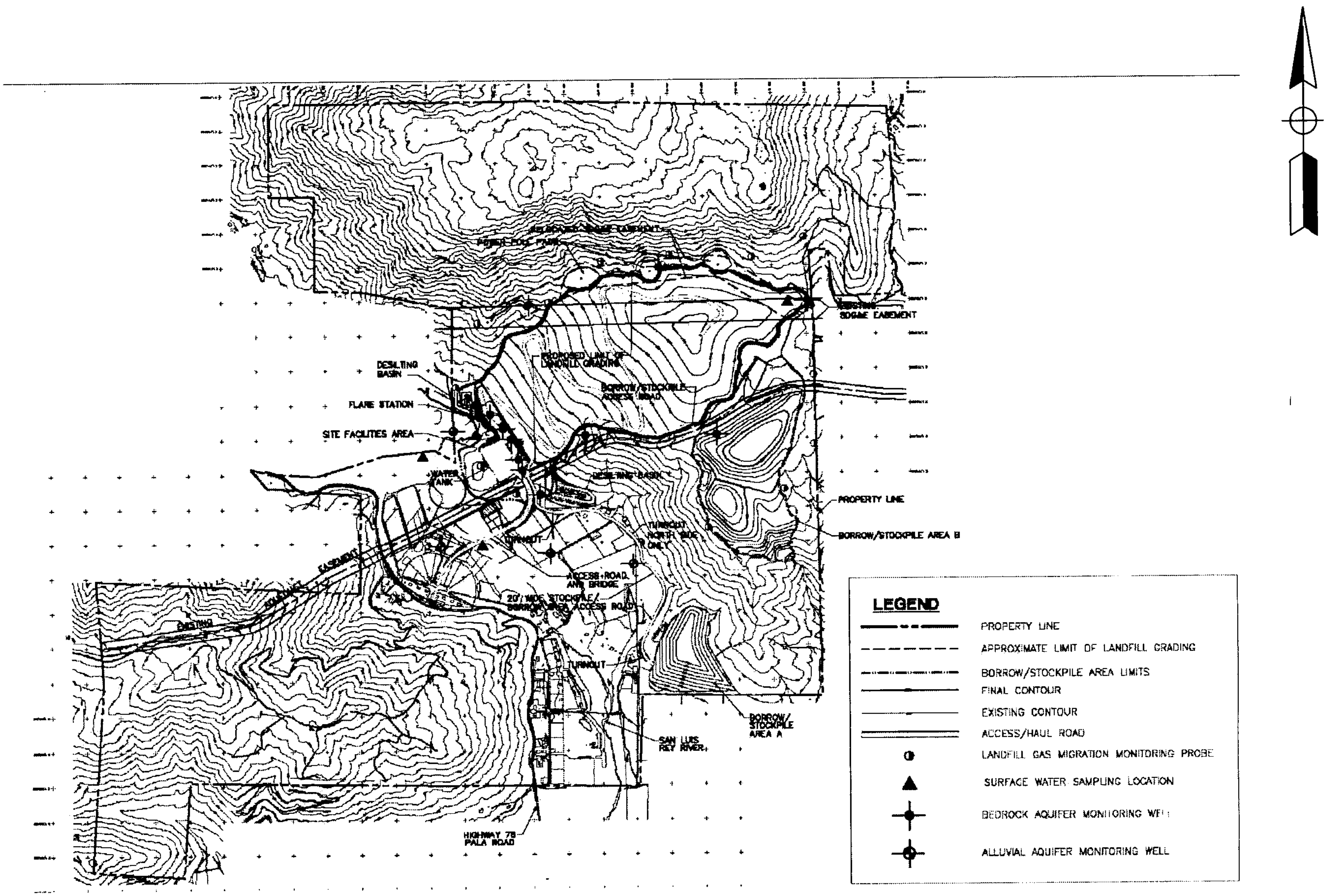

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FIGURE 2

SITE PLAN

consultants through a transportation impact report usually conducted as part of the CEQA project review process. Authority for local land use decisions including project approvals and any required mitigation remains the responsibility of local jurisdictions.

The criteria for which a project is subject to the regulations as set forth in the CMP are determined by the trip generation potential for the project. Currently, the threshold is 2,400 maximum daily trips (ADT) or 200 peak hour trips. The project will generate approximately 2,085 daily PCE trips with 206 morning peak hour and 247 evening peak hour trips and is therefore subject to CMP analyses. This traffic report complies with all CMP requirements in evaluating project and cumulative traffic impacts.

SR-76 and its intersections from Mission Avenue to SR-79 have been adopted in the CMP as a Regionally Significant Arterial (RSA). As such, this section of SR-76 is accountable to the CMP Standards and Regional Growth Management Strategy (RGMS) objectives for level of service (described in more detail later in this report).

SCENARIOS STUDIED

The following traffic scenarios were analyzed in this report and are identified as follows:

Existing Conditions refers to that condition which exists on the ground today, including existing traffic counts and existing lane configurations at intersections and on roadway segments.

Existing Plus Project Conditions refers to that condition which includes the project traffic added onto existing volumes. Analysis is first conducted using the existing street configurations, and mitigation is added if required.

Near Term Cumulative Without Project Conditions refers to that condition which includes approved/ pending projects in the study area expected to produce traffic in the next three years, plus the existing traffic volumes. This scenario shows the impact without the project.

Near Term Cumulative With Project Conditions refers to that condition which includes approved/ pending projects expected to produce traffic in the next three years plus the project traffic plus the existing traffic volumes. This scenario shows the impact with the project. Analysis is first conducted using the existing street configurations, and mitigation is added if required.

Year 2030 With and Without Project Conditions refers to year 2030 daily traffic both with and without the proposed project.

Year 2020 Buildout With and Without Project Conditions refers to the year 2020 daily traffic with and without the proposed project along Maranatha Drive, Camino del Norte/Camino del Sur, and I-15 between Pomerado Road and Carmel Mountain Road, to correspond to the maximum traffic impact arising from the Maranatha School and Church project on road and freeway segments in the vicinity of that project.

LEVEL OF SERVICE

Level of Service (LOS) is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. Level of Service is defined on a scale of A to F; where LOS A represents the best operating conditions and LOS F represents the worst operating conditions. LOS A facilities are characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds; traffic volumes are low and travel speeds are high. LOS F facilities are characterized as having forced flow with many stoppages and low operating speeds.

According to page XII-4-18 of the San Diego County General Plan *Public Facility Element,* the objective in the Transportation Section is to provide a "Level of Service C or better on County Circulation Element roads." The PFE however establishes LOS D as an off-site mitigation threshold for discretionary projects. When an existing Level of Service is already LOS D, "a LOS D may be allowed." According to the PFE, projects which significantly increase congestion on roads operating at LOS E or LOS F must provide mitigation. According to the PFE, this mitigation can consist of a fair share contribution to a program to mitigate the project's impacts.

ANALYSIS METHODOLOGY

The roadway segment daily LOS on State Route 76 was determined using the Highway Capacity Manual (HCM) Two-Lane Highway component for peak hours throughout the typical weekday. This analysis includes terrain inputs, travel speeds, pavement widths, access points, passing zones, and other factors to determine level of service more precisely than the generalized County's daily capacity thresholds.

The analysis of signalized/unsignalized intersections utilized the operational analysis procedure provided by the Highway Capacity Manual program, which is an approved County of San Diego methodology. This method defines Level of Service in terms of delay, or more specifically, average stopped delay per vehicle. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time. This technique uses 1,900 vehicles per hour per lane (vphpl) as the maximum saturation volume of an intersection. This saturation volume is adjusted to account for lane width, on-street parking, pedestrians, traffic composition (i.e. percentage trucks) and shared lane movements (i.e. through and right-turn movements originating from the same lane).

For the future condition, roadway segments were analyzed by comparing the average daily traffic to the County of San Diego's roadway classifications and capacities.

ORGANIZATION OF REPORT

Following this introduction, Section II introduces the existing base condition. Section III discusses trip generation and trip distribution associated with the proposed project. Section IV provides the impact analysis of all conditions, including introduction of cumulative projects, and the year 2030 conditions. Section V discusses the access requirements and an analysis of impacts on roads and freeways in the vicinity of the Maranatha School from recycled water trips. Section VI summarizes the project's direct and cumulative impacts where applicable. Section VII provides a summary of findings and conclusions.

SECTION II - EXISTING CONDITIONS

This section of the traffic study is intended to assess the existing conditions of the roadways and intersections within the vicinity of the project to determine travel flow and/or delay difficulties, if any, that exist prior to adding the traffic generated by the proposed project. The existing conditions analysis establishes a base condition which is used to apply the other scenarios discussed in this report.

Darnell & Associates conducted a field review of the area surrounding the project. Figure 3 depicts existing roadway and intersection geometrics in the project vicinity.

ROADWAY CHARACTERISTICS

Existing Roadway Segments

State Route 76 (Pala Road) is a regional facility extending from I-5 in Oceanside to its eastern terminus at SR-79 near Lake Henshaw. East of I-15, SR-76 is a two-lane facility. In the project vicinity, SR-76 traverses along flat terrain north of the San Luis Rey River flood plain. Field investigation of the potential grades on SR-76 was undertaken from the proposed project access to Interstate 15. Tight turns in SR-76 are indicated by advisory speed limit signs. In the vicinity of the project access, SR-76 provides two 11-foot travel lanes with 5' of paved shoulder on each side divided by a painted double yellow line.

Truck percentage data was collected on SR-76 during a 24-hour period in April 1999. Trucks with 3 or more axles accounted for 24% of westbound traffic, and 18% of eastbound traffic. The combined average is 21.3% trucks. The truck volume classification counts can be found in Appendix A.

The SR-76/I-15 diamond interchange is signalized for Northbound and Southbound access to I-15, as well as at Old Highway 395. The SR-76 over-crossing is two travel lanes with a painted center median and left turn pockets at the I-15 on-ramps. Four lanes of travel are available between the southbound ramp and Old Highway 395, transitioning to one lane in each direction west of Old Highway 395.

Caltrans is currently preparing an Operational Study of SR-76 east of I-15. According to Caltrans this study will not be available until February 2007.

Highway 395 is a north south facility which runs parallel to I-15 and intersects with SR-76. Highway 395 is currently a two lane facility posted at 55 mph, separated with a painted double yellow divider.

Twenty-four hour count data were collected in March 2005. Peak hour counts on SR-76 were developed using the daily counts which are summarized by hour. Count summaries are included in Appendix A.

PASSENGER CAR EQUIVALENT

Due to the high volume of truck traffic (21% detailed above), the traffic analysis is required to include the effect of heavy vehicles onto the street system. The Gregory Canyon project will also contribute heavy truck traffic to the study facilities. The Highway Capacity Manual (HCM) is a regionally accepted manual for determining the proper methodology to assess traffic impacts. The effect of heavy trucks can be evidenced on roadways with specific grades which may cause a truck to slow down more than a passenger car. To assess the relative passenger car equivalent (PCE) of a slow moving truck on an uphill grade, the HCM provides a matrix for rural highways which utilizes both specific grade percentages and average speeds.

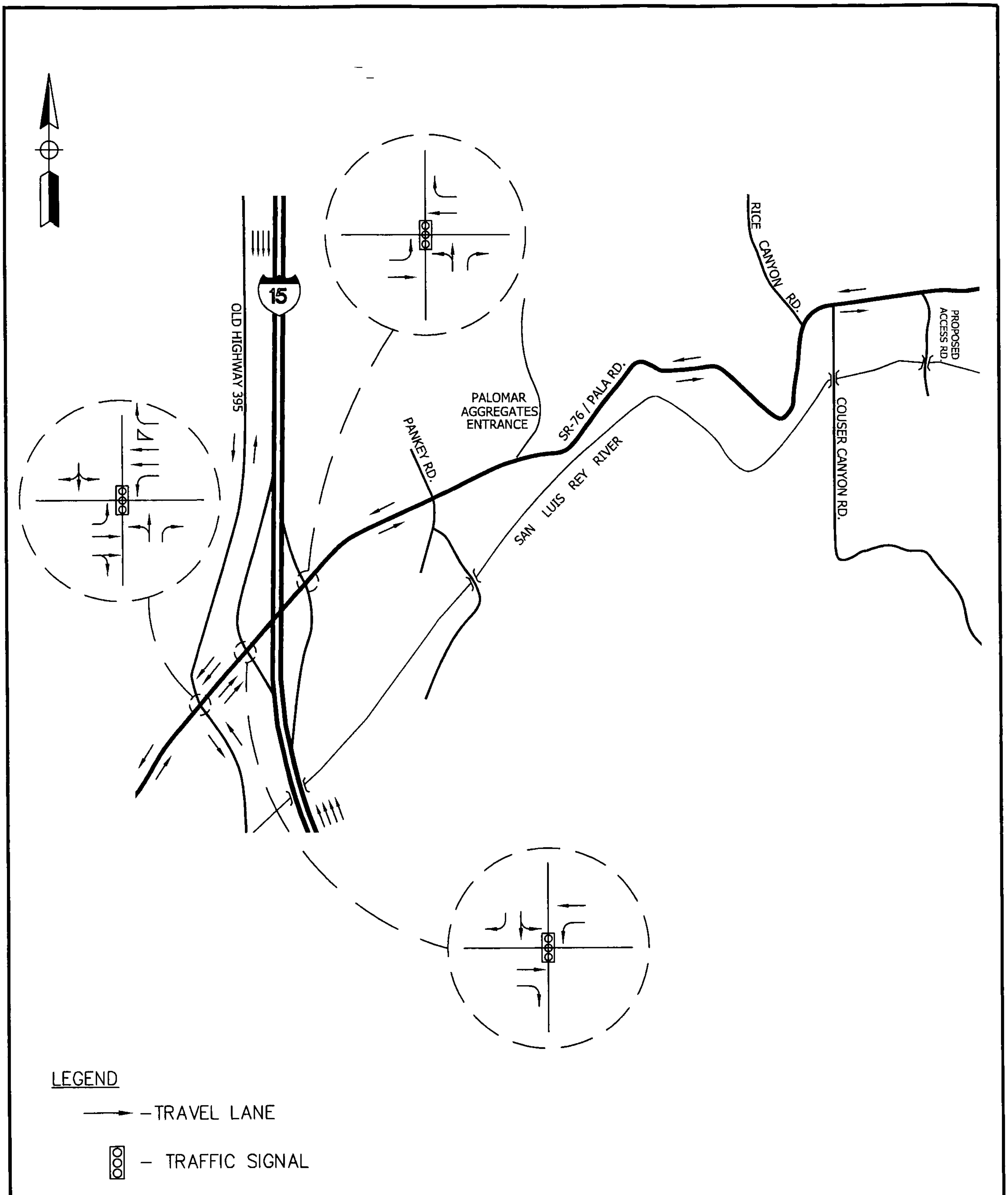

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FIGURE 3

EXISTING CONDITIONS

To estimate the vertical grade of SR-76, a level was placed on the centerline of the highway approximately 1/4-1/2 mile apart. The vertical grade profile sketch is provided in Appendix A. Along this segment, SR-76 does not exhibit or sustain grades greater than 2% and can therefore be considered a "level" roadway for the purposes of a traffic analysis.

A speed survey was conducted by D&A to establish current average speed through the state highway segments between I-15 and the project site. Four locations were surveyed, including in front of the proposed project access; east of the 20 mph curve; west of the 20 mph curve; and near Pankey Road. This selection of survey locations provides both the fastest and slowest portions of SR-76. The speed on the four segments was averaged to provide the speed variable for the PCE equivalent. The average speed on SR-76 was 37.85 mph. (Note: The variable speeds included 24.6, 33.0, 41.6, and 52.2 mph. Discounting the highest average speed and the lowest average speed from this formula, results in an average speed of 37.3 mph. This study applies the higher of the two averages.) Speed survey summaries are included in Appendix A to this report.

Table 1 details the PCE matrix as specified in the HCM Table 8-9. SR-76 is less than the minimum 3% grade, and therefore falls into the first row of Table 1. The average speed of the roadway is less than 40 miles per hour and would equate to a PCE factor of 1.3. This figure translates as one truck is equivalent to 1.3 passenger cars on this particular facility. For the purposes of the traffic analysis in this report, a PCE factor of 1.5 was applied, which is more conservative than the 1.3 PCE permitted by the HCM.

KEY INTERSECTIONS

D&A evaluated the following intersections for AM and PM peak hour level of service:

1. State Route 76/Highway 395 (signalized)
2. State Route 76/Interstate 15 North on/off (signalized)
3. State Route 76/Interstate 15 South on/off (signalized)

Peak hourly turning movement counts were conducted in March 2005 during typical weekdays (Tuesday through Thursday). Counts taken on Mondays and Fridays are not deemed acceptable by traffic engineers for traffic impact studies due to the variable surges of traffic which occur on these days making them unreliable predictors of daily traffic on area roadways. In addition, consideration of evening and weekend traffic would not be useful in assessing project impacts or developing traffic mitigation measures since the landfill will not be operating on Sundays or during evenings and will typically be operating on a more limited basis on Saturdays. On most Saturdays residential pickup of trash does not occur. Count summary sheets can be found in Appendix A. Figure 4 presents the existing conditions traffic volumes used in this analysis.

EXISTING ROAD SURFACE CONDITIONS

Caltrans provides regularly scheduled resurfacing and repairs to designated highways including SR 76 and I-15. No existing surface deficiencies were noted on area roadways as part of field investigations completed in conjunction with this traffic study.

TABLE 1

TABLE 8-9. PASSENGER-CAR EQUIVALENTS FOR SPECIFIC GRADES ON TWO-LANE RURAL HIGHWAYS, E AND E.

GRADE (%)	LENGTH OF GRADE (MI)	AVERAGE UPGRADE SPEED (MPH)					
		55.0	52.5	50.0	45.0	40.0	30.0
0	All	2.1	1.8	1.6	1.4	1.3	1.3
3	¼	2.9	2.3	2.0	1.7	1.6	1.5
	½	3.7	2.9	2.4	2.0	1.8	1.7
	¾	4.8	3.6	2.9	2.3	2.0	1.9
	1	6.5	4.6	3.5	2.6	2.3	2.1
	1½	11.2	6.6	5.1	3.4	2.9	2.5
	2	19.8	9.3	6.7	4.6	3.7	2.9
	3	71.0	21.0	10.8	7.3	5.6	3.8
	4	*	48.0	20.5	11.3	7.7	4.9
4	¼	3.2	2.5	2.2	1.8	1.7	1.6
	½	4.4	3.4	2.8	2.2	2.0	1.9
	¾	6.3	4.4	3.5	2.7	2.3	2.1
	1	9.6	6.3	4.5	3.2	2.7	2.4
	1½	19.5	10.3	7.4	4.7	3.8	3.1
	2	43.0	16.1	10.8	6.9	5.3	3.8
	3	*	48.0	20.0	12.5	9.0	5.5
	4	*	*	51.0	22.8	13.8	7.4
5	¼	3.6	2.8	2.3	2.0	1.8	1.7
	½	5.4	3.9	3.2	2.5	2.2	2.0
	¾	8.3	5.7	4.3	3.1	2.7	2.4
	1	14.1	8.4	5.9	4.0	3.3	2.8
	1½	34.0	16.0	10.8	6.3	4.9	3.8
	2	91.0	28.3	17.4	10.2	7.5	4.8
	3	*	*	37.0	22.0	14.6	7.8
	4	*	*	*	55.0	25.0	11.5
6	¼	4.0	3.1	2.5	2.1	1.9	1.8
	½	6.5	4.8	3.7	2.8	2.4	2.2
	¾	11.0	7.2	5.2	3.7	3.1	2.7
	1	20.4	11.7	7.8	4.9	4.0	3.3
	1½	60.0	25.2	16.0	8.5	6.4	4.7
	2	*	50.0	28.2	15.3	10.7	6.3
	3	*	*	70.0	38.0	23.9	11.3
	4	*	*	*	90.0	45.0	18.1
7	¼	4.5	3.4	2.7	2.2	2.0	1.9
	½	7.9	5.7	4.2	3.2	2.7	2.4
	¾	14.5	9.1	6.3	4.3	3.6	3.0
	1	31.4	16.0	10.0	6.1	4.8	3.8
	1½	*	39.5	23.5	11.5	8.4	5.8
	2	*	88.0	46.0	22.8	15.4	8.2
	3	*	*	*	66.0	38.5	16.1
	4	*	*	*	*	*	28.0

* Speed not attainable on grade specified.
NOTE: Round "Percent Grade" to next higher integer value.

is selected from Table 8-2, and appropriate adjustment factors are selected for use in Eq. 8-3.

The service flow rate at capacity, i.e., SF_E, is not as easily determined, because the speed at which it occurs varies depending on the percent and length of the grade in question. For the normal range of grades, i.e., 3 to 7 percent up to 4 miles long, capacity may occur at speeds ranging from 25 to 40 mph. The speed at which capacity occurs is related to the flow rate at capacity by the following equation:

$$S_c = 25 + 3.75(v_c/1000)^2 \qquad (8\text{-}8)$$

where:

S_c = speed at which capacity occurs, in mph; and

v_c = flow rate at capacity, in mixed vph.

For convenience, the equation predicts *upgrade* speeds based on total two-way flow rates. The equation is valid for speed up to 40 mph.

If the service flow rates computed for various speeds using Eq. 8-3 and the capacity speed vs. capacity flow rate relationship of Eq. 8-8 are plotted, the two curves will intersect. The inter-

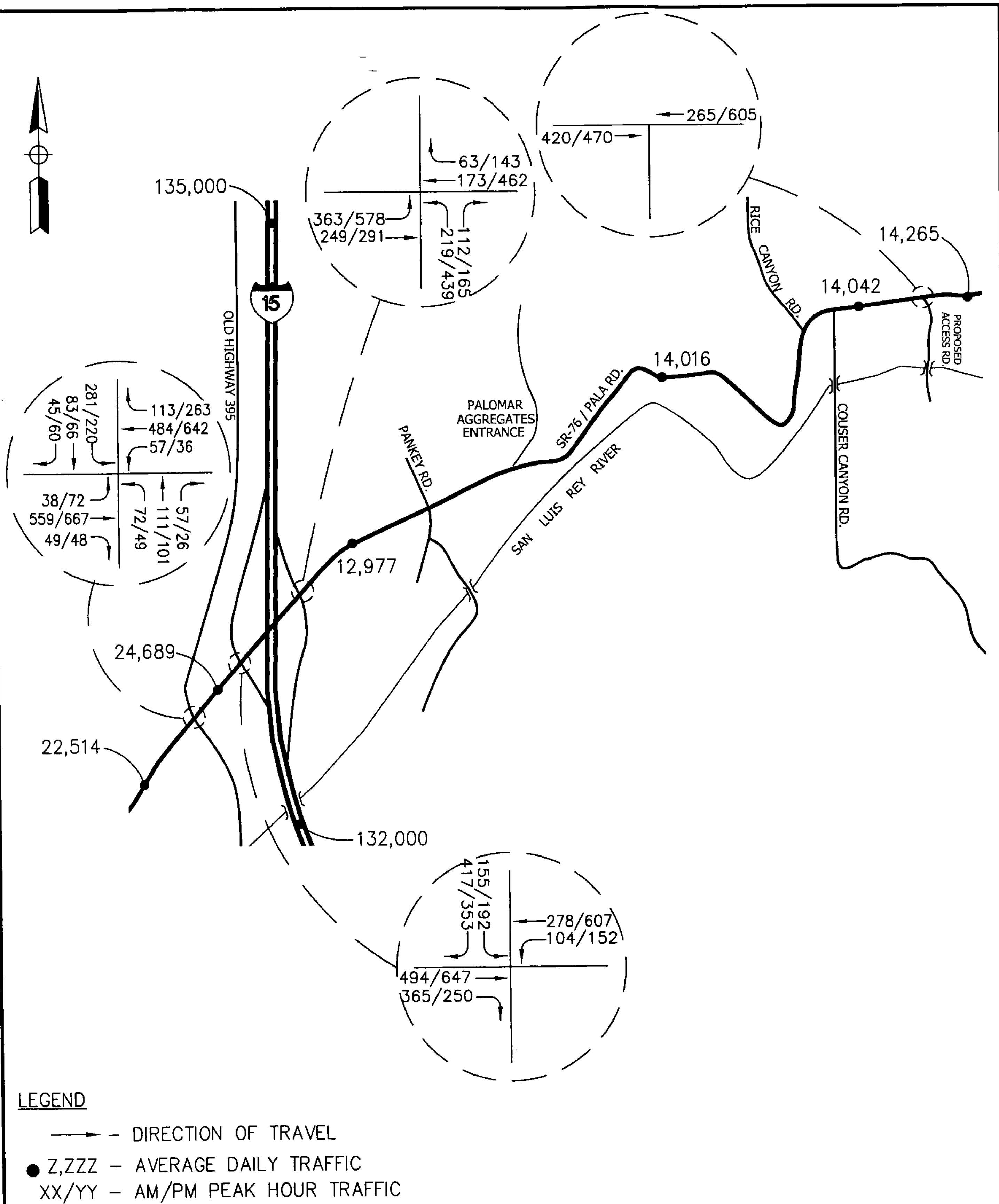

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FIGURE 4

EXISTING TRAFFIC VOLUMES

ACCIDENT REPORT FOR SR-76

Accident reports were requested from Caltrans for three segments of SR-76:

1. I-15 (P.M.17.169) to Pankey Road (P.M.17.866);
2. Pankey Road (P.M. 17.866 to P.M. 18.939) west of Couser Canyon; and
3. West of Couser Canyon Road (P.M.18.94) to east of the Project Access (P.M.21.440).

The accident reports covered seven (7) years from 1991 to 1998. Caltrans uses the TASAS software to report/identify accidents. The Caltrans accident reports are contained in Appendix A. Table 2 summarizes the accident data on SR-76 from 1991 through 1998 for the above segments. Table 2 also compares the street segment (actual) to the statewide (average) for each segment within the study.

Location 1 has an accident average of 4.63 accidents per million vehicle miles (MVM).
The state average is 1.46 per MVM. Location 1 is nearest the I-15 freeway ramps and the straighter segment of SR-76. No fatalities were identified during the seven year period for this segment.

Location 2 has an average of 2.07 accidents per MVM compared to the statewide average of 1.47. Location 2 identified one fatality in 1991, which included Pankey Road to west of Couser Canyon.

Location 3 has an average of 2.56 accidents per MVM compared to the state average of 1.48. Two fatalities were identified on this segment over the seven year period, which includes the segment of Couser Canyon east to the project site.

It has been postulated that an increase in traffic volumes will raise the number of accidents on a road segment. The accident summary in Table 2 does show that statistically SR-76 between I-15 and the project has an accident rate higher than the statewide average per million vehicle miles traveled. However, our research has revealed no direct or indirect statistical relationship between traffic volumes and the number of accidents on this portion of Highway 76.

Table 2 presents Caltrans accident data and Caltrans annual traffic count data from District 11. The table shows no annual trend of rising numbers of accidents corresponding to annual increases daily traffic volumes. The table shows both the total number of accidents and the traffic volumes varying from year to year. The table also shows that even with stable daily volumes on the three segments (Locations 1-3), the number of accidents varies between each segment. The only measurable effect of adding project traffic to the three segments of SR-76 between the project and I-15 is to increase the total daily trips and the annual vehicle miles traveled on these segments.

What Table 2 does show is that factors other than traffic volumes must be the denominator of the higher than average accident rate on these segments of SR-76. In discussions with state and local authorities we learned that accidents are a function of variable causes which predominately include: driver behavior (experience, carelessness, and excessive speed), weather conditions, and time of day, visibility, and roadway conditions. With the exception of existing roadway conditions, none of these variable causes is within the influence of the project.

As shown, accident summaries were obtained through Caltrans TASAS records for years 1991-1998 for three postmile segments on SR-76 from Interstate 15 to east of the project. A new TASAS run was completed in February 2002 for 1999-2001.

Table 2 - Accident Data Summary for State Route 76										
	Number of Accidents				Accident Rates/MVM					
					Actual*			Statewide Avg*		
Location 1 (a)	**Tot**	**F**	**I**	**F+I**	**Tot**	**F**	**F+I**	**Tot**	**F**	**F+I**
1991	1	0	1	1	0.57	0	0.57	1.46	0	0.77
1992	6	0	5	5	3.38	0	2.82	1.46	0	0.77
1993	12	0	7	7	6.78	0	3.96	1.46	0	0.76
1994	13	0	7	7	7.35	0	3.96	1.46	0	0.77
1995	11	0	4	4	6.25	0	2.27	1.46	0	0.77
1996	6	0	5	5	3.34	0	2.78	1.46	0	0.77
1997	11	0	5	5	6.43	0	2.92	1.46	0	0.77
1998	5	0	1	1	2.92	0	0.58	1.46	0	0.77
1991-1998	65	0	35	35	4.63	0	2.49	1.46	0	0.77
Location 2 (b)	**Tot**	**F**	**I**	**F+I**	**Tot**	**F**	**F+I**	**Tot**	**F**	**F+I**
1991	7	1	4	5	3.76	0.537	2.68	1.47	0	0.77
1992	1	0	1	1	0.54	0	0.54	1.47	0	0.77
1993	3	0	2	2	1.61	0	1.07	1.47	0	0.76
1994	1	0	1	1	0.54	0	0.54	1.47	0	0.77
1995	3	0	2	2	1.61	0	1.07	1.47	0	0.77
1996	9	0	3	3	4.82	0	1.61	1.47	0	0.77
1997	7	0	2	2	4.2	0	1.2	1.48	0	0.78
1998	0	0	0	0	0	0	0	1.46	0	0.77
1991-1998	31	1	15	16	2.07	0.07	1.07	1.47	0	0.77
Location 3 (c)	**Tot**	**F**	**I**	**F+I**	**Tot**	**F**	**F+I**	**Tot**	**F**	**F+I**
1991	7	0	5	5	1.6	0	1.14	1.47	0	0.77
1992	7	0	5	5	1.59	0	1.14	1.47	0	0.77
1993	10	0	7	7	2.28	0	1.6	1.47	0	0.77
1994	9	0	5	5	2.05	0	1.14	1.47	0	0.77
1995	13	1	8	9	3	0.231	2.08	1.47	0	0.77
1996	8	0	4	4	1.84	0	0.92	1.47	0	0.77
1997	19	1	7	8	4.9	0.258	2.06	1.48	0	0.78
1998	14	0	2	2	3.61	0	0.52	1.48	0	0.78
1991-1998	87	2	43	45	2.56	0.06	1.33	1.48	0	0.77

(a) Location 1: PM 17.169-PM 17.866 (I-15 SB Ramp to Pankey Road)
(b) Location 2: PM 17.866-PM 18.939 (Pankey Road to west of Couser Canyon)
(c) Location 3: PM 18.94-PM 21.440 (west of Couser Canyon to east of Gregory Cyn driveway)
MVM=Million Vehicle Miles; F=Fatalities; I=Injuries; Tot=Total
*Calculations performed by TASAS output, no manual adjustments were made
Source: TASAS report prepared 4/19/99

The 1999 study summarized the data from 1991-1998 in terms of number of accidents, fatalities and injuries, and compared it to statewide averages. For the purpose of this summary, the intent is to demonstrate an increase in traffic flow over the years has not increased the rate of incidents, nor does the design of the roadway have a significant influence on traffic accidents on SR-76. The complete printout of the 2002 accident summary segment is attached to this report.

Table 3 summarizes the accident data review. As shown in the top part of Table 3, total accidents were compared for the most recent three years (from the 2002 TASAS report) to the previous three years (from the 1999 TASAS report). (Note: the 2002 report includes data only through July 2001). The total accident difference is 23 fewer accidents in the recent three years. Although the traffic volume difference from 1996 to year 2001 has increased significantly (over 150 percent), the numbers of accidents have not.

The middle portion of the table shows accidents by vehicle type. Heavy truck traffic is involved 19.82% of the accidents for the entire length of the highway (111 accidents divided by 22 heavy trucks), with the worst-case incident rate of 23.37% for the easterly segment. These rates involving heavy trucks are similar to the truck traffic percentages on SR-76 established at approximately 21.3%.

The lower portion of the table identifies accidents by primary collision factor for the last three years. As shown with this comparison, nearly 90% of all accidents are caused by alcohol, speeding, and other traffic violations. There is no evidence based on traffic accident records that the design of the roadway or existence of trucks contributes to traffic accidents on SR-76.

To demonstrate the effects of the tight curves, additional speed surveys and observations were conducted , we at the two tight curves, the first posted with cautionary signs for 20 mph (considered the "hair-pin" turn) and the other posted at 25 mph (at Rice Canyon Road). We conducted additional speeds surveys through these curves to determine the difference between truck travel speeds and vehicular travel speeds. Speed surveys were taken at a point within each curve to demonstrate the approximate speed of vehicles traveling through the apex.

Trucks are able to safely navigate the curves while maintaining a similar speed with standard vehicles through these two curves. Table 4 summarizes the speed results within the two curves:

Eastbound trucks in the 25 mph curve (inside lane) had predominate speeds above the posted cautionary sign due to the super-elevation of the pavement. This was also observed for the westbound trucks within the 20 mph curve (inside lane). Trucks were observed to travel slower through the westbound 25 mph curve (outside lane) where the pavement is less elevated, but were still able to maintain a speed similar to standard vehicles and safely travel within the painted median.

Oceanside Waste Management provided two trucks for practical observations. An 8-ton hauling truck and a 24-ton transfer truck were brought into the field and tested both directions through the two curves. Cameras were posted at each curve to physically demonstrate the truck's ability to safely navigate within the painted medians. Reprinted photographs are provided in the appendices.

Field reviews noted other large trucks, including sand hauling vehicles which were similar in length to transfer trucks. The sand trucks had no difficulty in maintaining speeds through the curves without crossing the painted median. Based on our field observations at these two curves and the results of the speed survey analysis, no significant difference exists in truck speeds versus car speed through the tight curves.

Table 3 - Accident Summary Review			
Total Number of Accidents			
Year	**I-15 SB/Pankey**	**Pankey/Couser**	**Couser/East of Project**
1996	0	5	2
1997	5	7	18
1998	2	0	16
3 YEAR TOTAL	**7**	**12**	**36**
1999	0	5	8
2000	2	3	16
2001	0	5	17
3 YEAR TOTAL	**2**	**13**	**41**
TOTAL ACCIDENTS	**9**	**25**	**77**
ACCIDENTS BY VEHICLE TYPE (1996-2001)			
Passenger Car	6	15	35
Motorcycle	0	2	13
Pickup Truck/Panel	4	9	25
Heavy Trucks/Trailer	**1**	**3**	**18**
Emergency Vehicle	1	2	2
School Bus	0	0	1
Other Bus	0	0	1
Spilled Load	0	0	1
TOTAL VEHICLES	**12**	**31**	**96**
Heavy Trucks in Mix	**8.33%**	**9.68%**	**18.75%**
Heavy Trucks in Accidents	**11.11%**	**12.00%**	**23.37%**
Total Heavy Trucks in Accidents (All Segments Combined)			**19.82%**
PRIMARY COLLISION FACTOR (1996-2001)			
Alcohol	0%	12%	17%
Speeding	44%	24%	29%
Other Traffic Violation	44%	60%	52%
Other Than Driver	11%	0%	2%
Fell Asleep	0%	4%	0%
Note: Vehicles may exceed accident totals due to multi-vehicle accidents			

Table 4 - Summary of Speeds Within Curves								
Location	**Westbound Vehicles**				**Eastbound Vehicles**			
	Trucks		**Cars**		**Trucks**		**Cars**	
	Vol.	**Avg MPH**	**Vol.**	**Avg. MPH**	**Vol.**	**Avg MPH**	**Vol.**	**Avg MPH**
SR-76 at 20 mph curve	14	23.2	29	28.2	17	26.8	46	32.5
Difference: Trucks vs. Cars				**5.0**				**5.7**
SR-76 at 25 mph curve	23	21.4	37	27.2	20	30.8	42	32.2
Difference: Trucks vs. Cars				**5.8**				**1.4**

20 mph curve has super-elevation for westbound traffic
25 mph curve has super-elevation for eastbound traffic

UPDATED ACCIDENT REPORT

A summary of accident data for the years 2003 through 2005 was provided by the California Department of Transportation (Caltrans) for State Route 76 between Interstate 15 and the proposed project. This data is compared to the accident rate data provided from previous years.

Table 5 summarizes the results of the accident rate comparison. Note that the traffic volumes have increased from approximately 5,700 daily trips in 1998 to 13,300 daily trips in 2005.

As shown on Table 5, the actual fatality rate on SR-76 is less than the statewide average over the most recent three years and less than the rates identified from 1991-2001. The combined fatality plus injury rate is slightly higher than the statewide average, but less than reported in 1991-2001 (however, the most recent data is 0.38 above the statewide average, while 1991-2001 is 0.30 above the statewide average). Finally, the total rate of 1.81 for recent years is 0.48 higher than the statewide average, yet this margin is less than the 0.60 difference reported in 1991-1998.

Table 5 also demonstrates the statewide averages for overall accident rates per million vehicle miles is 0.14 less than it was in 1991-1998 (1.47 versus 1.33) although the average daily traffic has more than doubled.

The TASAS (currently TSN) report delineated primary accident factors for the 71 accidents reported during the three recent year period. Approximately 24% of the accidents were alcohol related; approximately 70% were caused by illegal driver violations (i.e., following too closely, failure to yield, improper turn, speeding, and other violations); 3% were determined to be caused by "other than driver" which may or may not be related to highway conditions; 1% attributable to driver falling asleep; and approximately 1% to unknown factors.

Previous reports from 1991-2001 also had high rates of alcohol related incidents (17%); and over 70% for illegal driver violations. Primary factors "other than driver" were previously as high as 11%.

Table 5 - Comparison of Accident Data
SR-76 From I-15 to Project Access

	1991-1998		2003-2005	
	Actual*	Statewide Average	Actual*	Statewide Average
Average Daily Traffic	5700		13300	
Fatality	0.07	0.0	0.025	0.029
Fatality+Injury	1.07	0.77	1.02	0.64
Total	2.07	1.47	1.81	1.33

Source: TASAS - Table B - California Dept of Transportation
* Calculations performed by TASAS (currently TSN) output; no manual adjustments were attempted
Note: 1991-1998 indicates most conservative rates (fewest incidents)

Based on the comparison of primary collision factors, the data continues to show that alcohol, driver violations, and excessive speed are the major causes of accidents on SR-76. The data does not show an increase in volumes or trucks is related to the accident rate which is consistent with previous conclusions.

EXISTING CONDITIONS LEVEL OF SERVICE

Peak Hour Roadway Segments

To precisely define the level of service on SR-76, peak hour analyses were conducted. The peak hour roadway segment analysis component of the Highway Capacity Manual uses several physical inputs including directional splits, pavement widths, prevailing speeds, truck traffic, etc., to determine level of service. Note that Friday and Saturday peak hours are not typical traffic periods analyzed in traffic studies. On weekends, the increase in casino traffic will be offset by the reduction in "home to work" traffic which occurs during the weekdays. On Fridays, the increases from the casino will normally occur after the closure of the landfill.

Using the worst-case input configuration, the resulting peak hour threshold on SR-76 is 1316 vehicles per hour to attain LOS D. Table 5 summarizes the results of the peak hour analysis for SR-76 for the existing condition between the hours of 7:00am to 6:00pm. These hours were used due to corresponding hours of operation for the proposed landfill. As shown on Table 6, all segments of SR-76 east of I-15 operate below the 1316 vehicle threshold determined by the HCM software and are considered to operate at LOS D or better. For the segment west of Highway 395, a deficient LOS E operation exists from approximately 12:00pm to 6:00pm.

Table 6 - Summary of Existing Peak Hour Volumes on State Route 76
Existing Condition

	SR-76 Segments									
	West of 395		I-15/Pankey		Pankey/Couser		Couser/Project		East of Project	
Time of Day	**Traffic**	**LOS**	**Traffic**	**LOS**	**Traffic**	**LOS**	**Traffic**	**LOS**	**Traffic**	**LOS**
7:00 AM	1055	D	608	C	600	C	617	C	627	C
8:00 AM	1129	D	651	C	654	C	635	C	645	C
9:00 AM	1178	D	679	C	655	C	670	C	681	C
10:00 AM	1296	D	747	D	776	D	761	D	773	D
11:00 AM	1065	D	614	C	702	D	779	D	791	D
12:00 PM	1381	E	796	D	874	D	856	D	870	D
1:00 PM	1362	E	785	D	909	D	906	D	920	D
2:00 PM	1707	E	984	D	1085	D	1074	D	1091	D
3:00 PM	1815	E	1046	D	1147	D	1189	D	1208	D
4:00 PM	1803	E	1039	D	1189	D	1115	D	1133	D
5:00 PM	1546	E	891	D	978	D	937	D	952	D
Column Totals	15337		8840		9569		9539		9691	

Source: February 2005 Traffic Counts;

Peak Hour LOS D Maximum is **1316** Vehicles; and LOS E maximum at **2628** Vehicles based on HCM software 4.1f

Intersections

The existing conditions analysis for intersections is summarized in Table 7. As shown on Table 7, all intersections in the study area operate acceptably for the existing conditions. No deficiencies are reported.

A recent study prepared for the Pala Mesa Highlands project (TM 5187) dated August 31, 2005, reported an LOS E condition at the SR-76/I-15 Northbound ramp for the existing condition. In reviewing the traffic volumes and analysis conducted by Kimley Horn, it was determined that the existing traffic volumes were slightly less than this Gregory Canyon study for the same intersection. The two traffic studies report consistent levels of service for the other SR-76 intersections at I-15 South and Highway during peak hours, however, the northbound ramp intersection showed a significant increase in delay.

Both traffic studies used the same regionally accepted analysis program to determine levels of service. Due to the unusual conclusion drawn from the Pala Mesa Highlands report, we reviewed our analysis model inputs and parameters and determined them to be consistent with County defaults. After confirming the analysis model, the existing traffic volumes were inserted from the Pala Mesa Highlands report. The resulting level of service for the Pala Mesa Highlands traffic volumes determined LOS D for the northbound intersection, which is an acceptable level of service within the County of San Diego.

A copy of the existing conditions analyses worksheets is found in Appendix D.

Table 7 - Existing Intersection Level of Service Summary

Intersection	Crit Mvmt.	Existing Conditions Delay sec/veh	LOS
AM PEAK HOUR			
SR-76/Old Highway 395	Int.	29.2	C
SR-76/Interstate 15 South	Int.	20.1	C
SR-76/Interstate 15 North	Int.	21.1	C
PM PEAK HOUR			
SR-76/Old Highway 395	Int.	24.9	C
SR-76/Interstate 15 South	Int.	19.2	B
SR-76/Interstate 15 North	Int.	52.4	D

Delay is measured in seconds per vehicle; Δ Delay=change in delay; LOS=level of service;
Delay and LOS calculated using SYNCHRO; Crit. Mvmt = Critical Movement;
Int.= Intersection is critical movement (signalized)

Intersecting Lane Volumes (ILV)

Caltrans' methodology for intersection operation uses Intersecting Lane Volumes (ILV) analysis. This methodology compares critical movements within a signalized intersection to determine acceptable flow. Caltrans flow rates assume a value of less than 1200 vehicles to be free flowing; a value between 1200-1500 is considered acceptable flow; and values exceeding 1500 are considered deficient.

The ILV analysis for the existing condition is summarized in Table 8. As shown in Table 8, all ILV values are within acceptable ranges.

Table 8 - Summary of Existing Intersection Operation Caltrans Intersecting Lane Volumes (ILV)		
Intersection	**Existing AM Peak ILV**	**Existing PM Peak ILV**
State Route 76/Highway 395	977	949
State Route 76/Interstate 15 South	1015	1152
State Route 76/Interstate 15 North	755	1479

ILV=Intersecting Lane Volumes (Caltrans Methodology)
ILV Value = less than 1200 (Free Flow)
ILV Value = 1200-1500 (Acceptable Flow)
ILV Value = exceeds 1500 (Deficient Flow)

Ramp Operation

Ramp operation for the Existing Condition was conducted with the HCS Software for merge and diverge junctions and is summarized in Table 9. As shown on Table 9, all ramps operate acceptably.

Table 9 - Summary of Existing Ramp Operation				
	AM Peak		**PM Peak**	
Ramp ID	**Density**	**LOS**	**Density**	**LOS**
SR-76/I-15 North On	19.2	B	19.9	B
SR-76/I-15 North Off	20.7	C	22.2	C
SR-76/I-15 South On	19.1	B	18.9	B
SR-76/I-15 South Off	22	C	21.9	C

Analysis performed with Highway Capacity Software (Merge/Diverge)
Density = Passenger Cars per lane per mile
LOS = Level of service defined by HCS output

Existing Freeway Segment Operation

Freeway segments are analyzed using Caltrans methodology, which includes peak hour factors, directional distribution, and truck factors, comparing the output to level of service. Table 10 summarizes the freeway segment operation in the project vicinity on Interstate 15. As shown on Table 10, Interstate 15 segments north and south of SR 76 operate acceptably for the existing condition.

Table 10 - Existing Freeway Segment Level of Service

Interstate 15 Segment Limits	# Lanes	Peak Capac	Peak Hr. %	Dir. Split	Truck Factor	Existing Condition		
						ADT	V/C	LOS
North of State Route 76	4	9200	7.35%	55%	10.23%	135000	0.654	C
South of State Route 76	4	9200	6.82%	55%	8.14%	132000	0.582	B

Lanes = Number of lanes in one direction; Peak Capac = peak capacity in one direction

Peak Hr % = peak hour percentage per ratio of peak hour versus average daily traffic (per Caltrans Traffic Volumes)

Dir. Split = directional split percentage of peak hour traffic traveling in peak direction; Truck Factor = influence of heavy vehicles

ADT = average daily traffic; V/C = volume to capacity ratio per Caltrans District 11 methodology; LOS = Level of service A to F, including F(0) to F(3)

Calculation formula = ((ADT*PH%*Dir. Split)+Truck Factor) / Peak Capacity

SECTION III - TRIP GENERATION & ASSIGNMENT, CUMULATIVE TRAFFIC

The proposed landfill will be located in Gregory Canyon, approximately 3.5 miles east of Interstate 15 on State Route 76. The Gregory Canyon site is planned to contain approximately 30 million tons of refuse with an operating life of about 30 years.

PROJECT TRIP GENERATION

Trip generation for a landfill is unique to operations of the facility. Truck traffic is expected to utilize SR-76 west to Interstate 15, with a small amount of traffic (5%) traveling east on SR-76. Population densities in relation to this proposed facility indicates that most of the waste originates from areas south and west of I-15. Only nominal amounts will originate from the east on SR-76 or north on I-15; and only insignificant amounts of vehicles would utilize other access points along SR-76, such as Rice Canyon Couser Canyon, Old Highway 395, Gird Road or Mission Road. Discussions with the applicant have resulted in defining operations such that trips can be determined by input rate, employment, known collection truck thresholds, and other service/visitor trips to the site. Using the maximum input rate of 5,000 tons of material per day utilizing 8-ton collection trucks, Table 11 summarizes the total number of vehicles and trucks expected to utilize the landfill site during specific hours of the day. As noted on Table 11, the 5,000 tons per day generate a maximum of 625 refuse trucks. The passenger car equivalent (PCE) of 1.5 was applied to convert heavy trucks into equivalent passenger cars. As detailed previously in this report, the Highway Capacity Manual (HCM) provides the regionally acceptable PCE's based on street grade and average speed. Field studies concluded no grades greater than 2% on SR-76 between I-15 and the project access with averaged speeds of 37.85 mph. The trip generation on Table 10 includes the 1.5 PCE applied to trucks.

In this case, the solid waste permit will limit the project to a total of 2085 trips per day and a total of 675 trucks per day from all sources including the trucking of recycled water. When the project reaches a total of 2085 daily trips or 675 trucks per day form all sources, the project will be required to close down for that day. On days when more trips are utilized for recycled water, fewer trips will be available from other sources. As noted later in this report, the project will be required to maintain a daily log of its total daily trips and daily truck available to the LEA at all times to ensure compliance with these conditions contained in the solid waste permit.

To ensure a worst-case analysis of project traffic impacts, the analysis has been completed based on the assumption that the project will accept 5000 tons of solid waste per day. However, the solid waste permit will limit the project to a total of 1 million tons of solid waste per year or an average of 3200 tons per day. Accordingly, the traffic impacts for the project contained in this traffic study, overstates the expected traffic impacts of the project on a daily basis over the course of a year. As shown on Table 11, while this traffic study analyzes project traffic based upon a maximum of 2085 daily trips, expected trip generation over the course of a year given the tonnage limitation in the solid waste permit is 1410 daily trips. The higher number of trips has been utilized to ensure a worst-case analysis of daily project trips on those limited days where the project will receive 5000 tons of waste in a day.

At the daily maximum capacity of 5,000 TPD, the 8-ton refuge trucks equate to 625 trucks (5,000 tons divided by 8 ton trucks). However, at the average capacity of approximately 3,200 TPD contained in the solid waste permit, refuge truck traffic would be 400 trucks per day (3,200 tons divided by 8 ton trucks). Daily refuge truck deliveries may also be decreased through the use of vehicles that carry more than 8 tons of trash.

Table 11 - Summary of Trip Gregory Canyon Trip Generation

Maximum Waste Volume = 5000 tons per day
Average Waste Volume = 3200 tons per day
Maximum Volume Trucks = 675 trucks x 1.5 PCE x 2 trips/day = 2025 trips (625 maximum 8-ton refuse trucks plus construction and water)
Average Volume Trucks = 450 trucks x 1.5 PCE x 2 trips/day = 1350 trips (400 max 8-ton trucks plus construction and water)
Number of employee vehicles = 20 per day x 2 trips/day = 40 trips
Number of Service/Visitor Vehicles = 10 per day x 2 trips/day = 20 trips

MAXIMUM WASTE VOLUME TRIP GENERATION

Vehicle Type	Time of Day										
	7:00	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**1:00**	**2:00**	**3:00**	**4:00**	**5:00**	**Total**
Trucks [1]	82	141	202	183	243	202	183	243	243	183	120	**2025**
Employee	11	9	0	0	0	0	0	0	0	11	9	**40**
Service	0	2	4	4	4	0	2	4	0	0	0	**20**
Hourly Total	**93**	**152**	**206**	**187**	**247**	**202**	**185**	**247**	**243**	**194**	**129**	**2085**

AVERAGE WASTE VOLUME TRIP GENERATION

Vehicle Type	Time of Day										
	7:00	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**1:00**	**2:00**	**3:00**	**4:00**	**5:00**	**Total**
Trucks [1]	54	94	135	122	162	135	122	162	162	122	80	**1350**
Employee	11	9	0	0	0	0	0	0	0	11	9	**40**
Service	0	2	4	4	4	0	2	4	0	0	0	**20**
Hourly Total	**65**	**105**	**139**	**126**	**166**	**135**	**124**	**166**	**162**	**133**	**89**	**1410**

Vehicles are shown as two-way (enter/exit) except employees which are shown as one way entering AM/existing in PM
PCE = passenger car equivalent per HCM Table 8-9
[1] Trucks = Max trucks permitted is 675 (includes hauling, recycled water, and construction trucks)

Note: The solid waste permit for the project will limit daily traffic to a total of 675 trucks or 2085 daily trips.

It is possible that the project site would be loaded by a proportion of 10-ton trucks. Using 10-ton trucks, the maximum refuse threshold would be met with 500 trucks (5,000 divided by 10). At such time, the site would be required to close for the day, having reached the maximum tonnage. However, the site could still accommodate additional trucks for recycled water and/or construction up to the 675 truck maximum.

After the landfill is opened, this daily volume of trucks will vary. The fluctuation in the number of exporting trucks can be accommodated by the difference between the absolute "maximum" of 5,000 tons of trash per day (2,085 trips including construction, recycled water, employee, service and visitor traffic) as opposed to the "average" 3,200 tons per day (1,410 trips). The difference between these two daily volumes expressed in PCE trips, is 675 per day.

As noted previously, the solid waste permit for the project will limit both daily and yearly traffic. Daily traffic will be limited to a maximum of 675 trucks per day from all sources including recycled water and a total of 2085 daily trips. Yearly traffic will be limited by a solid waste permit condition limiting the project to a total of 1 million tons of solid waste per year or an average of 3200 tons per day translating into the 1410 daily trips described in this analysis. The project will be required to implement specific operational requirements, most notably an early warning system, to ensure compliance with these permit conditions.

It should be noted that construction activity prior to opening the landfill would consist of fewer truck trips than once the facility is open. Therefore, no pre-opening construction traffic analysis was conducted as the operational project related conditions analyze worst-case traffic conditions.

Table 11 shows that employees are expected to generate 40 trips per day. The 8 ton collection trucks (including construction and recycled water trucks) will generate 2,025 daily passenger car equivalents (PCE). Service/visitor vehicles are assumed to generate 20 trips. Therefore, during the heaviest expected input rate for this facility, Gregory Canyon landfill will generate approximately 2,085 daily PCE trips. Table 11 also shows the average trip generation for the site. These totals represent a typical traffic load at the facility during normal operation. The actual average trips per day are estimated at 1,410 daily trips and include construction and recycled water trucks.

Discussion over the total project traffic trips considered the difference between trash "haul" trucks and "transfer" trucks. This study assumed a trash haul truck as an 8-ton capacity vehicle and, supported by the Highway Capacity Manual, established a passenger car (PCE) equivalency of 1.5 per 8-ton truck. A transfer truck has the capacity of 24-tons with a PCE factor established by the County of San Diego of 4.0 per vehicle.

By comparison:

> A single 8-ton truck making a full trip (to and from) with a PCE factor of 1.5 will generate three (3) total trips. (1 truck) X (2 trip lengths) X (1.5 PCE) = 3 total trips
>
> A single 24-ton truck making a full trip (to and from) with a PCE factor of 4.0 will generate eight (8) total trips. (1 truck) X (2 trip lengths) X (4.0 PCE) = 8 total trips.

Since the proposed project traffic is based on maximum tonnage not trucks, the 24-ton transfer truck would replace three (3) 8-ton direct haul trucks.

By comparison:

Three 8-ton direct haul trucks generate nine (9) total trips: 3 X 3 = 9
One 24-ton transfer truck generate eight (8) total trips: 1 X 8 = 8

Replacing direct haul trucks with transfer trucks would ultimately reduce the project's total traffic. The maximum 8-ton direct haul trucks were utilized for this analysis to generate the worst-case project traffic.

PROJECT TRIP DISTRIBUTION

D&A distributed project traffic to likely routes and destinations described previously. Based on the geographic location and available arterials leading to mainline access, 95% of the traffic is oriented west of the project site and 5% is oriented east of the project site.

In contrast to previous studies for this project, implementation of recycled water trucks totaling 267 trips has effected overall project distribution. The previous study estimated a total of 10% (or 209 PCE trips) west of Highway 395 on SR-76, however, this distribution did not calculate the known route for recycled water truck trips which are now part of the current project. The 267 worst-case water trucks are oriented north/south on Interstate 15, due to the location of the Olivenhain facility located south on I-15, that will travel east on SR-76 to the project site. None of these recycled water truck trips will travel west on SR 76 after exiting I-15. These vehicles represent approximately 13% of overall traffic for the site. As stated above, the total project traffic for the landfill is 2085 trips. Noting that 267 of these trips are committed to the I-15 north/south corridor to collect/distribute water, a higher percentage of project distribution was generated on I-15 and less to the west along SR-76. Mathematically, by assigning the 267 known trips south/north on I-15, the remaining 1,818 trips (2085 less 267) result in approximately 8% of the project total trips (approximately 167 PCE trips) for SR-76 west of I-15. (Note: some rounding of numbers occurs in distribution and assignment.)

Additionally, subsequent to previous traffic report comments, the City of Oceanside has initiated a policy to not allow waste transfer into the Gregory Canyon site. This further reduces the amount of traffic oriented on SR-76 west of I-15.

The relatively isolated location of the project limits the haul routes to and from the project. The San Diego County Circulation Element routes of Couser Canyon Road and Rice Canyon Road will still serve as local haul routes to SR-76 for the communities of Rainbow and northern Valley Center. These local haul routes are not linked to any regional routes, except for SR-76 in the vicinity of the landfill, thus the potential of their becoming new regional routes to the project is not considered feasible.

With the above factors assisting in determining project distribution, along with applying known population densities within regional origins/destinations, approximately 77% of the traffic is expected to utilize the I-15 corridor to the south, 10% to the north, and 8% west along SR-76.

Nominal truck trips will utilize local roadways such as Rice Canyon and Couser Canyon, however these volumes are considered insignificant due to the existing low volumes and adequate levels of service on these local roadways. In order to evaluate a conservative worst-case analysis of impacts onto state highways and interstates, no project trips were assigned to local roads such as Rice Canyon or Couser Canyon.

Figure 5 graphically depicts the distribution splits.

Figure 6 shows the traffic volume associated with the directional distribution, converted into PCEs. As stated previously, the morning and afternoon peak hours generally occur between 7-9am and 4-6pm, respectively. Generally, the highest project traffic during these peak hours is acceptable for analysis.

The project traffic was added to the existing traffic volumes. The resulting existing plus project traffic volumes are provided on Figure 7.

CUMULATIVE PROJECT TRAFFIC

Research into County records identified approximately 34 additional projects to be included in the analysis within the Pauma/Pala regional district, and an additional 180 projects identified in the Valley Center area with regional influence to the SR-76 corridor. A summary of the major projects in the Pauma/Pala study vicinity are described as follows (Appendix C provides a summary of all project identifications, including the Valley Center area and miscellaneous Pauma/Pala area projects):

Pala Casino Expansion - includes 70,000 square feet of gaming facility expansion, resort hotel with 50 rooms, and ancillary development. This project generates approximately 4,950 daily trips 111 morning trips and 299 evening trips.

Meadow Wood (formerly Pankey Ranch - TM 5354) includes approximately 1,244 dwelling units on approximately 390 acres. This project generates 10,566 daily trips with 845 occurring in the morning peak hour and 1,013 in the evening peak hour. This development is in the planning stages and is not expected to begin construction for nearly three (3) years. For the near term condition, approximately 10% of this project is included in the 3-year near term analysis.

Passerelle (TM 5338) - proposes 698 single family units, 252 senior housing units, 4 acres of town center and 150,000 square feet of office space, generating approximately 24,846 daily trips, 2,830 morning peak hour trips and 3,054 evening peak hour trips. This development is in the planning stages and is not expected to begin construction for three (3) years. For the near term condition, approximately 5% of this project is included in the 3-year near term analysis.

Campus Park Specific Plan (includes all parcels) - This specific plan consists of a mixed use development on the eastside of I-15, north of SR-76. Current applications for this project include a 2-year junior college with a maximum full-time enrollment of 8500 students. For the near term interim condition, it was assumed that 2250 students will be enrolled in the next three years (which equates to approximately 750 students per day on campus).

Rosemary Mountain Palomar Aggregates - This project is located on the north side of SR-76, approximately 1-1/4 miles east of I-15. The transportation element was obtained for this project for determining project traffic and distribution. This project is conditioned to improve SR-76 to four lanes from its access to I-15. This mining project has heavy truck traffic which was converted into PCEs.

Calmat Pala Mine - This project is located on the Pala Indian Reservation, east of the Gregory Canyon project and was determined to be in operation during the data collection process. The existing counts account for this project.

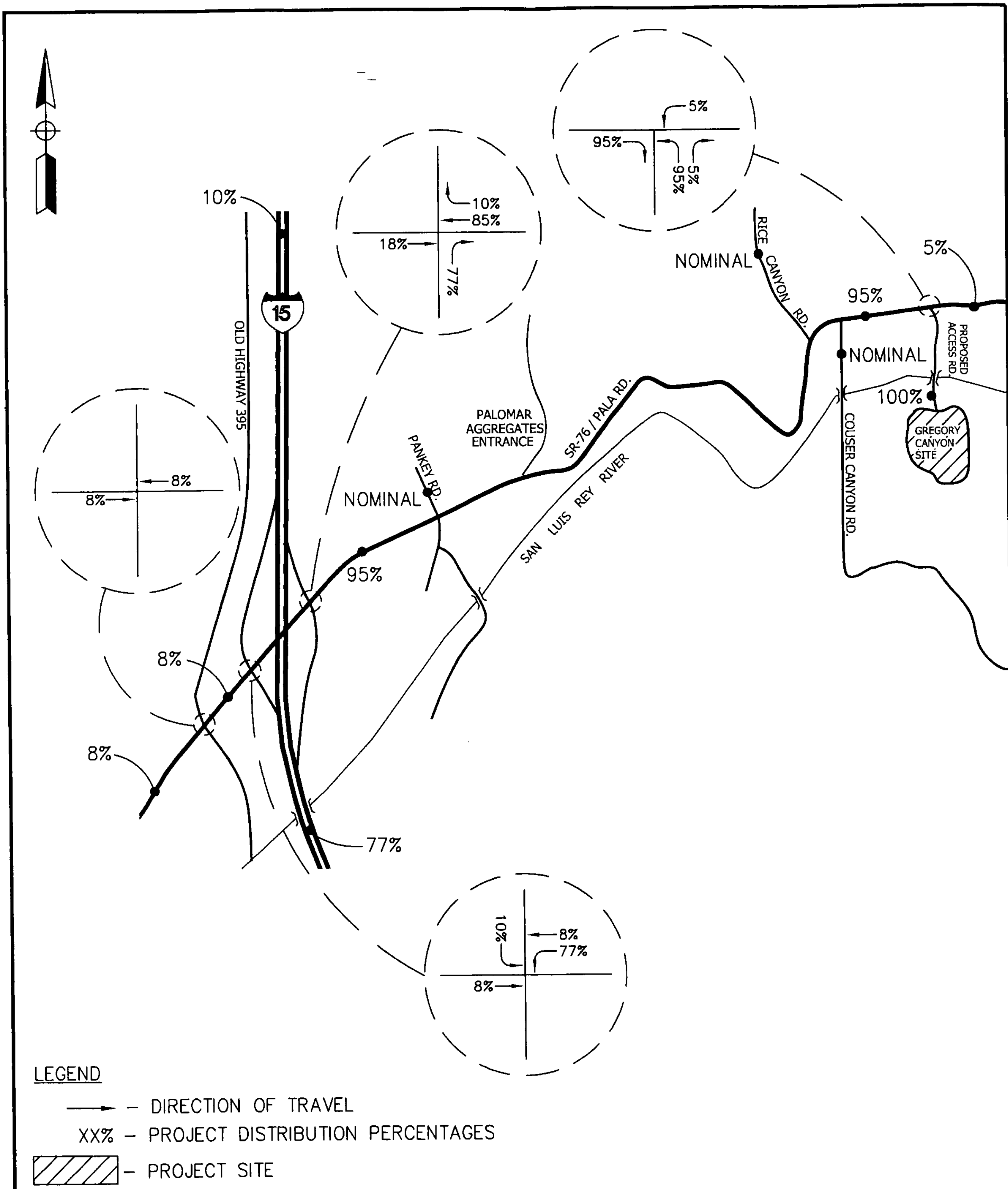

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FIGURE 5

PROJECT DISTRIBUTION PERCENTAGES

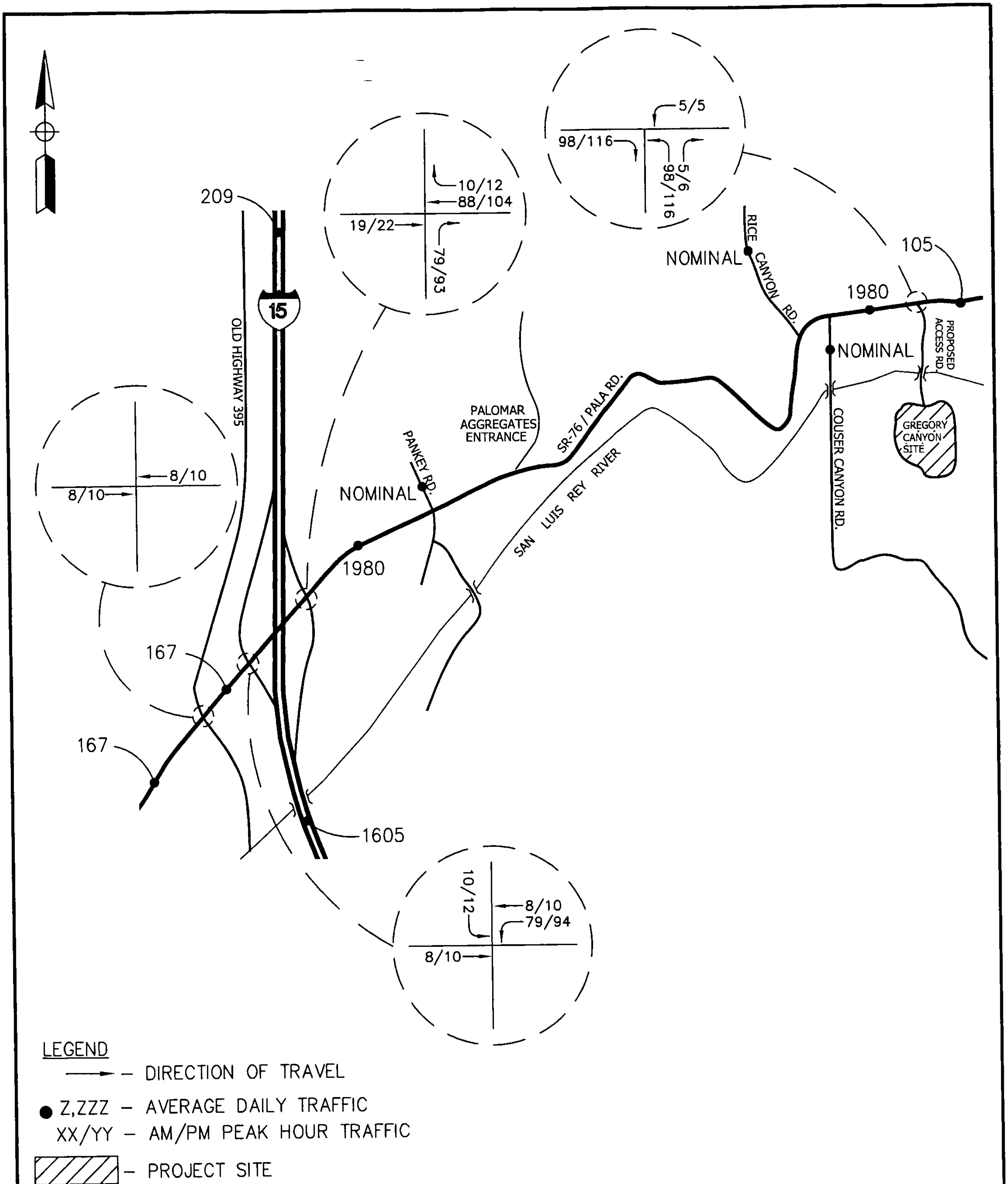

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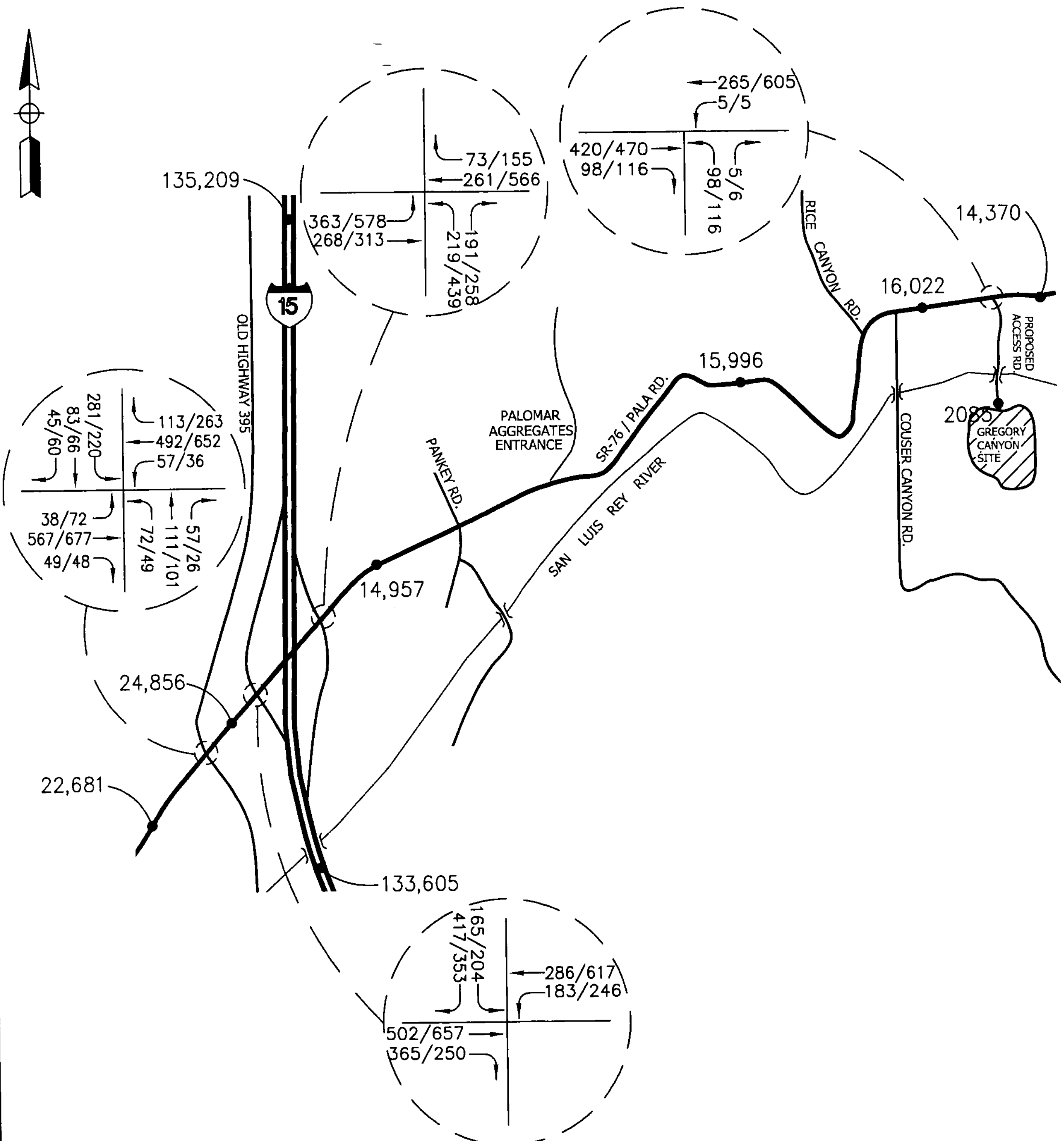
FIGURE 6

PROJECT RELATED TRAFFIC



LEGEND

- DIRECTION OF TRAVEL

● Z,ZZZ – AVERAGE DAILY TRAFFIC

XX/YY – AM/PM PEAK HOUR TRAFFIC

– PROJECT SITE

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FIGURE 7

EXISTING PLUS PROJECT TRAFFIC

Pipeline #6 - This is a construction project to install a 30-mile long pipeline through the Gregory Canyon site. Information on construction of the pipeline determined this project will generate 40 truck trips per day (or 60 ADT converted to PCEs), and an additional 80 trips per day for employee/service vehicles, for a total of 140 daily trips. This traffic is oriented to the east during operation.

Sycamore Ranch - The Sycamore Ranch specific plan is located on 482 acres west of I-15 and north of SR-76, to develop 486 residential lots and a golf course. The transportation document was used for traffic generation and distribution. The latest MUP reduces the lots on this project to 195 and a golf course. This development is expected to be 50% occupied in the 3-year near term analysis.

Gas Station - A proposed gas station located on the southwest corner of I-15/SR-76. It was assumed to be a 12-fueling station facility, generating approximately 1,800 daily trips.. Traffic generation was estimated using approved trip generation rates and distributed to the street network.

I-15/SR-76 Master Specific Plan - This is a master plan project which includes the Lake Rancho Viejo development area (included below), commercial development, RV Park. This project was removed from the near term cumulative analysis due to lack of processing activity or technical documentation.

Lake Rancho Viejo - This project is located south of the Campus Park Specific Plan project and is approved for 816 dwelling units. This development is expected to be 25% occupied in the 3-year near term analysis.

Brooks Hills - This project is a 110 lot residential development west of Gird Road on SR-76 in the Fallbrook community. The transportation element of the EIR was used to determine project traffic and distribution.

Dulin Ranch - This project is located south of SR-76 and west of I-15 (southeast of Sycamore Ranch), and proposes 526 homes on 625 acres, and includes a school. Due to the inactivity and lack of technical documentation on this project it was removed from the near term analysis.

Improvement Project on SR-76 - This is a Caltrans project for future improvements to SR-76 from 0.3 miles east of Airport Road to 0.2 miles east of I-15. This project does not directly impact traffic associated with the near term cumulative analysis and no trips were added to the system to account for this project.

Pauma Valley Fruit Packing Facility - This project is located near SR-79 east of the proposed Gregory Canyon project, and includes 38,060 square feet. Traffic for this facility was estimated using approved trip generation rates and distributed manually to the street network.

Cole Grade Park - (MUP-98-026) is an 8.96 acre multi-use park which generates approximately 360 daily trips with 29 in the morning peak hour and 36 in the evening peak hour.

Valley Center Church (P-03-083) is a school/church (120 maximum students) and generates approximately 766 daily trips with 66 in the morning peak hour and 121 in the evening peak hour.

Skyridge Estates-Phase II (STP-01-006), 2 estate lots, generates approximately 24 daily trips with 2 in the morning peak hour and 2 in the evening peak hour.

Countryside Veterinary (STP-02-006), 3,280 square feet of veterinary medicine space generates approximately 16 daily trips with 1 in the morning peak hour and 2 in the evening peak hour.

The remaining traffic generators throughout the County which contribute to the SR-76 facility are summarized in Appendix C.

NEAR TERM CUMULATIVE TRAFFIC

Existing plus near term traffic without the proposed project is presented on Figure 8. The addition of project traffic to the near term condition results in the near term cumulative (with project) traffic volumes which are presented on Figure 9.

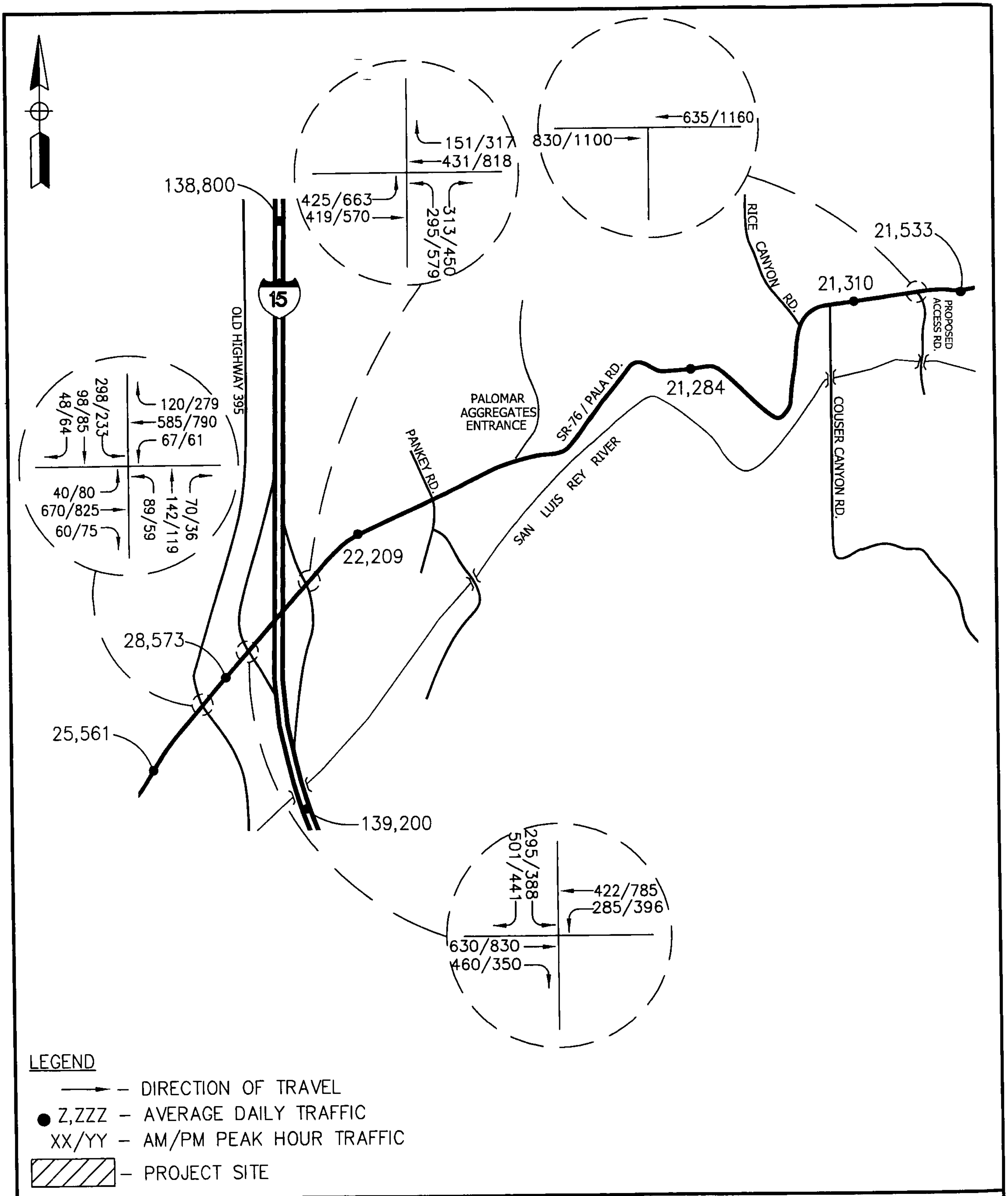

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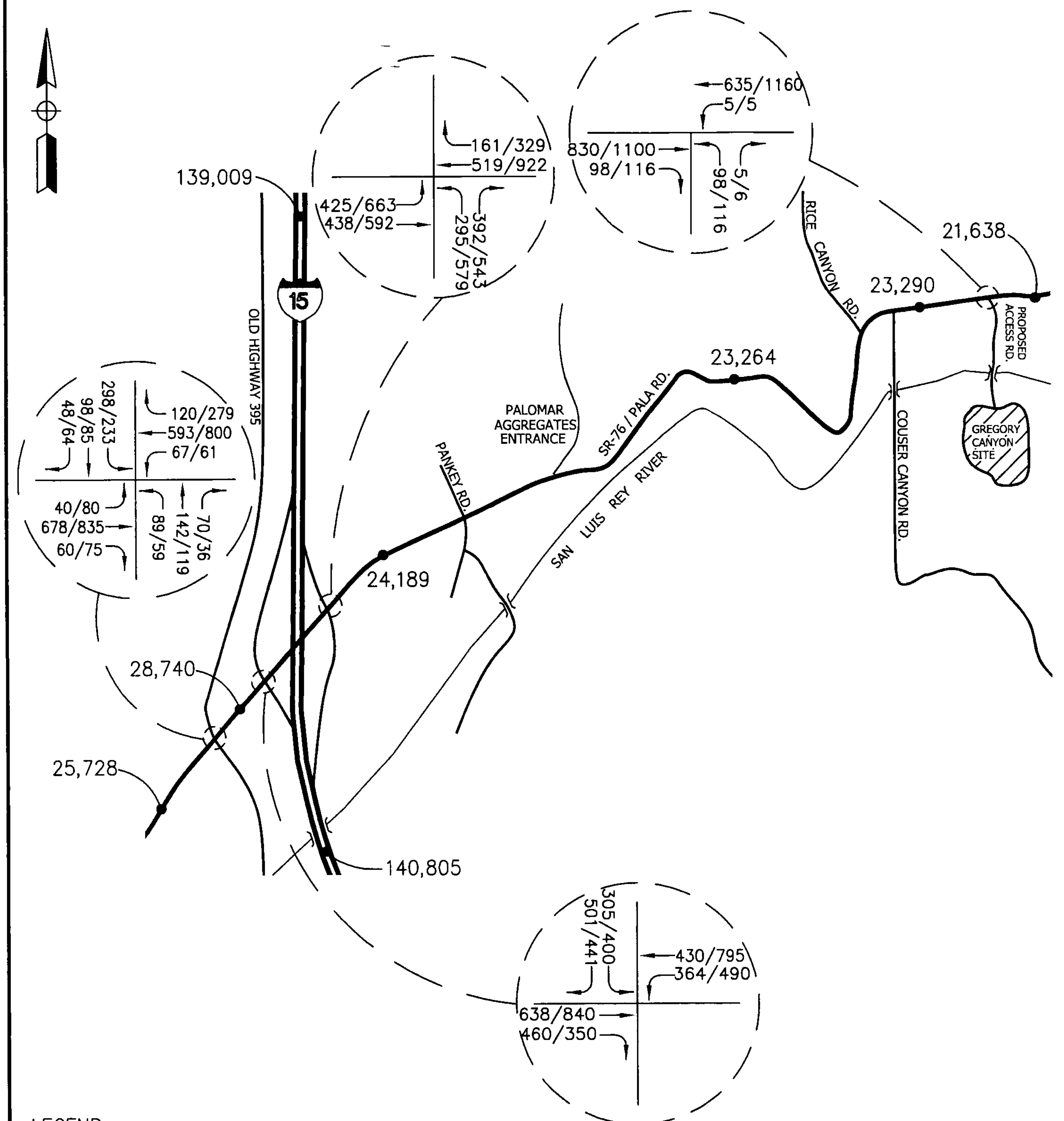
FIGURE 8

NEAR TERM (NO PROJECT)



LEGEND

- DIRECTION OF TRAVEL
● Z,ZZZ - AVERAGE DAILY TRAFFIC
XX/YY - AM/PM PEAK HOUR TRAFFIC
- PROJECT SITE

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FIGURE 9

NEAR TERM PLUS PROJECT TRAFFIC

SECTION IV - IMPACTS

PUBLIC FACILITIES ELEMENT IN COUNTY

According to page XII-4-18 of the *Public Facility Element* for San Diego County, a discretionary project which has a significant impact on roadways will be required, as a condition of approval, to make "improvements or other measures necessary to mitigate traffic impacts to avoid reduction in the existing Level of Service below 'D' on off-site and on-site abutting Circulation Element roads. New development that would significantly impact congestion on roads at LOS "E" or "F", either currently or as a result of the project, will be denied unless improvements are scheduled to increase the LOS to "D" or better or appropriate mitigation is provided. Appropriate mitigation would include a fair share contribution in the form of road improvements or a fair share contribution to an established program or project. If impacts cannot be mitigated, the project will be denied unless a specific statement of overriding findings is made pursuant to Section 15091(b) and 15093 of the State CEQA Guidelines."

The *Public Facility Element* for the County of San Diego also requires that all on-site Circulation Element roads operate at Level of Service C or better. If the Level of Service at an on-site Circulation Element road is reduced below LOS C, the proposed project must provide appropriate mitigation measures.

CUMULATIVE IMPACTS

The County of San Diego has developed an overall programmatic solution that addresses existing and projected future road deficiencies in the unincorporated portions of San Diego County. This program includes the adoption of a Transportation Impact Fee (TIF) program to fund improvements to roadways necessary to mitigate potential cumulative impacts caused by traffic from future development. This program is based on a summary of projections method contained in an adopted planning document, as referenced in the State CEQA Guidelines Section 15130 (b)(1)(B), which evaluates regional or area wide conditions contributing to cumulative transportation impacts. Based on SANDAG regional growth and land use forecasts, the SANDAG Regional Transportation Model was utilized to analyze projected build-out (Year 2030) development conditions on the existing circulation element roadway network throughout the unincorporated area of the County. Based on the results of the traffic modeling, funding necessary to construct transportation facilities that will mitigate cumulative impacts from new development was identified. Existing roadway deficiencies will be corrected through improvement projects funded by other public funding sources, such as TransNet, gas tax, and grants. Potential cumulative impacts to the region's freeways have been addressed in SANDAG's Regional Transportation Plan (RTP). This plan, which considers freeway buildout over the next 30 years, will use funds from TransNet, state and federal funding to improve freeways to projected level of service objectives in the RTP.

The proposed project generates 2085 daily trips. These trips will be distributed on circulation element roadways in the County that were analyzed by the TIF program, some of which currently or are projected to operate at inadequate levels of service. The potential growth represented by the proposed project was included in the growth projections upon which the TIF program is based. Therefore, payment of the TIF, which will be required at issuance of building permits, in combination with other components of the program described above, will fully mitigate potential cumulative and future traffic impacts to less than significant.

LEVELS OF SIGNIFICANCE STANDARDS

The County of San Diego has developed Draft Guidelines to determine level of significance standards for direct and cumulative project impacts. These are summarized as follows:

Roadway Segments

The project is deemed to have a significant project impact on a roadway segment if:

> The additional or redistribution of ADT generated by the project will cause an adjacent or nearby County Circulation Element roadway to operate below LOS D and will significantly increase congestion as identified in Table 12 (below), and/or:
>
> The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity, and/or:
>
> The addition or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road, State Highway or intersection currently operating at LOS E or LOS F as identified in Table 12 (below).

Signalized Intersections

The project is deemed to have a significant project impact at a signalized intersection if:

> The additional or redistribution of ADT generated by the project will cause signalized intersection to operate below LOS D and will significantly increase congestion as identified in Table 12 (below), and/or:
>
> The addition or redistributed ADT generated by the proposed project will significantly increase congestion at a signalized intersection currently operating at LOS E or LOS F as identified in Table 12 (below).

Unsignalized Intersections

The project is deemed to have a significant project impact at an unsignalized intersection if:

> The proposed project generates 20 or more peak hour trips to a critical turn movement and cause the unsignalized intersection to operate below LOS D, or
>
> The proposed project generates 20 or more peak hour trips to a critical turn movement and the unsignalized intersection currently operates at LOS E, or
>
> The proposed project generates 5 or more peak hour trips to a critical turn movement and cause the unsignalized intersection to operate below LOS E, or
>
> The proposed project generates 5 or more peak hour trips to a critical turn movement and the unsignalized intersection currently operates at LOS F.

Table 12 - Measures of Significant Impacts

ALLOWABLE INCREASES ON CONGESTED ROADS & INTERSECTIONS

ROADWAY SEGMENTS			
	2-Lane Roadway	**4-Lane Roadway**	**6-Lane Roadway**
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT
INTERSECTIONS			
	Signalized	**Unsignalized**	
LOS E	Delay of 2 Seconds	20 pk hour to Critical Movement	
LOS F	Delay of 1 Second, or 5 pk hour to Critical Movement	5 pk hour to Critical Movement	
ALLOWABLE INCREASES ON CIRCULATION ELEMENT ROADS/INTERSECTIONS			
	Roadway Segments	**Signalized Intersections**	
LOS E&F	0.02 Increase to V/C 1 miles per hour speed	2.0 seconds of delay	

LOS = level of service
ADT = average daily traffic
V/C = volume to capacity ratio
pk hour = peak hour trips in the critical movement

Freeways

Caltrans has established a goal of maintaining a LOS D, but has not provided significance criteria. As a result, this traffic study will utilize the significance criteria developed by SANTEC (San Diego Traffic Engineers Council), which is in common usage in the County. SANTEC criteria treats a project as having a direct impact requiring mitigation if it causes an increase of more than 2% in freeway traffic on a segment operating at LOS E or worse.

EXISTING PLUS PROJECT CONDITIONS

Exiting Plus Project Intersections

Existing plus project intersection operation is summarized in Table 13. As shown on Table 13, all study intersections operate acceptably with the addition of the proposed project. The project does not meet County significance criteria and no off-site mitigation is required. Note that the project access remains stop controlled for exiting traffic and operates acceptably with the acceleration and deceleration lanes proposed as part of the project features.

Table 13 - Existing Plus Project Intersection Level of Service Summary										
AM PEAK HOUR										
		Existing Conditions		Existing Plus Project						
Intersection	Crit Mvmt.	Delay sec/veh	LOS	Delay sec/veh	LOS	Δ Delay	Max Critical Movement	Proj Signif?	Proj. Impact
SR-76/Old Highway 395	Int.	29.2	C	29.3	C	0.1	8	N/A	None
SR-76/Interstate 15 South	Int.	20.1	C	21.0	C	0.9	79	N/A	None
SR-76/Interstate 15 North	Int.	21.1	C	22.3	C	1.2	88	N/A	None
SR-76/Project Access	WB	N/A		8.4	A		98	N/A	None
	NB			12.1	B				
PM PEAK HOUR									
SR-76/Old Highway 395	Int.	24.9	C	25.7	C	0.8	10	N/A	None
SR-76/Interstate 15 South	Int.	19.2	B	19.6	B	0.4	94	N/A	None
SR-76/Interstate 15 North	Int.	52.4	D	53.1	D	0.7	104	N/A	None
SR-76/Project Access	WB	N/A		8.6	A		116	N/A	None
	NB			15.4	C				

Delay is measured in seconds per vehicle; LOS=level of service; Δ Delay=change in delay;
Max Critical Movement = maximum vehicles in single critical movement
Delay and LOS calculated using SYNCHRO; Int.=Intersection; EB=eastbound, NB=northbound
Proj Signif? = Project significance based on County of San Diego's *Guidelines for Determining Significance*

Existing Plus Project Peak Hour Roadway Segment Analysis

The hourly analysis on SR-76 was conducted and is summarized on Table 14. Note that volumes which exceed 1316 hourly volumes results in LOS E traffic flow. As shown on Table 14, the project exceeds the LOS D maximum threshold of 1316 peak hour vehicles from 2:00pm to 5:00pm on State Route 76 east of I-15. The existing plus project hourly traffic results in "direct project impacts" and requires mitigation. (It is noted that 95% of project traffic travels west of the project driveway, resulting in 1,981 westerly oriented trips assigned to SR-76.)

As noted previously, the segment west of Highway 395 is currently operating at LOS E conditions with or without the project from 12pm to 6pm. Since the project contributes less than 200 vehicles on the LOS E roadway it is not required to mitigate for this impact under the County's significance criteria. However, the project incrementally adds traffic to the existing unacceptable level of service on this segment of SR-76 which is treated as a significant impact for purposes of this traffic study. The project will be required to pay the County's Transportation Impact Fee to fund its fair share of this cumulative traffic condition.

It is our recommendation that mitigation for the direct impact to SR-76 would be to limit project related traffic within the evening peak hours. Table 15 was created to demonstrate that while traffic can be limited during the hours of 2:00pm to 5:00 pm, overall traffic can be dispersed throughout the day without exceeding peak hour thresholds, maintaining the maximum of 675 truck trips.

Table 14 - Summary of Peak Hour Volumes on State Route 76
Existing Plus Project Condition - 5,000 tpd

	5000 tpd	SR-76 Segment																			
	Project	West of 395				I-15/Pankey				Pankey/Couser				Couser/Project				East of Project			
Time of Day	Traffic	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS
7:00 AM	88	1055	D	1067	D	608	C	696	D	600	C	688	C	617	C	705	D	627	C	635	C
8:00 AM	144	1129	D	1141	D	651	C	795	D	654	C	798	D	635	C	779	D	645	C	654	C
9:00 AM	196	1178	D	1194	D	679	C	875	D	655	C	851	D	670	C	866	D	681	C	691	C
10:00 AM	178	1296	D	1308	D	747	D	925	D	776	D	954	D	761	D	939	D	773	D	783	D
11:00 AM	235	1065	D	1078	D	614	C	849	D	702	D	937	D	779	D	1014	D	791	D	799	D
12:00 PM	192	**1381**	**E**	**1395**	**E**	796	D	988	D	874	D	1066	D	856	D	1048	D	870	D	879	D
1:00 PM	176	**1362**	**E**	**1377**	**E**	785	D	961	D	909	D	1085	D	906	D	1082	D	920	D	929	D
2:00 PM	235	**1707**	**E**	**1727**	**E**	984	D	1219	D	1085	D	**1320**	**E**	1074	D	1309	D	1091	D	1102	D
3:00 PM	231	**1815**	**E**	**1835**	**E**	1046	D	1277	D	1147	D	**1378**	**E**	1189	D	**1420**	**E**	1208	D	1219	D
4:00 PM	184	**1803**	**E**	**1821**	**E**	1039	D	1223	D	1189	D	**1373**	**E**	1115	D	1299	D	1133	D	1144	D
5:00 PM	122	**1546**	**E**	**1561**	**E**	891	D	1013	D	978	D	1100	D	937	D	1059	D	952	D	961	D
Column Totals	1981	15337		15504		8840		10821		9569		11550		9539		11520		9691		9796	

Source: February 2005 Traffic Counts; Project Traffic of 1981 vehicles is 95% west oriented from 2085 total; (Note: traffic east of project is 5% or 105 trips; and west of 395 is 8% or 167 trips)

Peak Hour LOS D Maximum is **1316** Vehicles based on latest software version

Bold indicates volume exceeds maximum threshold

Table 15 - Summary of Peak Hour Volumes on State Route 76
Redistributed - Existing Plus Project Condition - 5,000 tpd

		Redist.	Proj	SR-76 Segment (Redistributed Project Traffic)																			
	Proj	Proj	Traffic	West of 395				I-15/Pankey				Pankey/Couser				Couser/Project				East of Project			
Time	Traffic	Traffic	Diff.	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS	Existing	LOS	w/Proj	LOS
700	88	106	18	1055	D	1067	D	608	C	714	D	600	C	706	D	617	C	723	D	627	C	635	C
800	144	166	22	1129	D	1141	D	651	C	817	D	654	C	820	D	635	C	801	D	645	C	654	C
900	196	216	20	1178	D	1194	D	679	C	895	D	655	C	871	D	670	C	886	D	681	C	691	C
1000	178	206	28	1296	D	1308	D	747	D	953	D	776	D	982	D	761	D	967	D	773	D	783	D
1100	235	235	0	1065	D	1078	D	614	C	849	D	702	D	937	D	779	D	1014	D	791	D	799	D
1200	192	232	40	**1381**	**E**	**1395**	**E**	796	D	1028	D	874	D	1106	D	856	D	1088	D	870	D	879	D
1300	176	216	40	**1362**	**E**	**1377**	**E**	785	D	1001	D	909	D	1125	D	906	D	1122	D	920	D	929	D
1400	235	215	-20	**1707**	**E**	**1727**	**E**	984	D	1199	D	1085	D	1300	D	1074	D	1289	D	1091	D	1102	D
1500	231	111	-120	**1815**	**E**	**1835**	**E**	1046	D	1157	D	1147	D	1258	D	1189	D	1300	D	1208	D	1219	D
1600	184	111	-73	**1803**	**E**	**1821**	**E**	1039	D	1150	D	1189	D	1300	D	1115	D	1226	D	1133	D	1144	D
1700	122	167	45	**1546**	**E**	**1561**	**E**	891	D	1058	D	978	D	1145	D	937	D	1104	D	952	D	961	D
Totals	1981	1981	0	15337		15504		8840		10821		9569		11550		9539		11520		9691		9796	

:005 Traffic Counts; Project Traffic of 1981 vehicles is 95% west oriented from 2085 total; (Traffic east of project is 5% or 105 trips; west of 395 is 8%, 167 trips)

Peak Hour LOS D Maximum is **1316** Vehicles based on latest software version

Bold indicates volume exceeds maximum threshold

As shown on Table 15, the reductions in traffic apply between the 2:00pm-5:00pm hours. The maximum allowable trips during the 2:00pm hour are 215 trips; during the 3:00pm hour is 111 trips; and the 4:00pm hour is 111 trips. Trips are calculated using a passenger car equivalency (PCE) of 1.5 per truck, multiplied by 2.0 to generate two-way traffic (enter and exit). For example, one (1) truck multiplied by 1.5 PCE, multiplied by 2.0 trips, equals three (3) totals trips per truck. The maximum trips during the effected peak hours equate to the following truck traffic.

2:00pm hour of 215 trips equals 72 trucks (215 divided by 1.5 divided by 2.0)
3:00pm hour of 111 trips equals 37 trucks (111 divided by 1.5 divided by 2.0)
4:00pm hour of 111 trips equals 37 trucks (111 divided by 1.5 divided by 2.0)

Project operations will be required to monitor truck traffic throughout the day to a maximum of 675 trucks (including construction, recycled water, and trash hauling trucks). Additionally, as a result of the above analysis, further monitoring is required between the hours of 2:00pm-5:00 pm. Once the site has reached the maximum allowable trucks as defined during the peak hours above, or met tonnage maximum, the project operations will be required to close down and maintain thresholds.

To ensure daily traffic restrictions, the project shall implement the following measures upon commencement of operations:

Once 95% of the maximum daily traffic limit is reached, the landfill operator shall immediately notify commercial waste haulers to curtail waste deliveries as needed to assure compliance with the maximum daily traffic limits. Notwithstanding the above, the landfill operator may not refuse acceptance of any waste collection vehicle that was traveling on SR 76 east of I-15 at the time notice was given.

Each contract for waste delivery at the landfill shall notify the customer of the peak hour traffic restrictions, shall require that the customer cooperate in good faith in scheduling deliveries to adhere to peak hour restrictions, and shall implement a notification system whereby the customer would be directed to use alternative disposal facilities as needed to assure compliance with the peak hour traffic restrictions.

Compliance with peak hour traffic restrictions shall be monitored on the inbound lane of the landfill access road at a location as near as feasible to SR 76. Vehicle trips will be counted manually or, if feasible, electronically, and where appropriate converted into PCE. If electronic measurement methods are incorporated, and if feasible, electronic traffic counts shall be made available to the Department of Environmental Health at its offices on a real-time basis. The landfill operator shall report traffic count information to the Department of Environmental Health weekly in writing.

Once 75% of the peak hourly restriction is reached, the landfill operator shall immediately notify commercial waste haulers to curtail waste deliveries, pursuant to the contract arrangements described above, as needed to assure compliance with the peak hour traffic restrictions. Notwithstanding the above, the landfill operator may not refuse acceptance of any waste collection vehicle that was traveling on SR 76 east of I-15 at the time notice was given

Ramp Operation

Ramp operation for the existing plus project condition is summarized on Table 16. As shown on Table 16 all ramps operate acceptably and no mitigation is required.

Table 16 - Summary of Existing Plus Project Ramp Operation								
	Existing Condition				Existing Plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
Ramp ID	Density	LOS	Density	LOS	Density	LOS	Density	LOS
SR-76/I-15 North On	19.2	B	19.9	B	19.2	B	20	B
SR-76/I-15 North Off	20.7	C	22.2	C	21.1	C	22.7	C
SR-76/I-15 South On	19.1	B	18.9	B	19.3	B	19.1	B
SR-76/I-15 South Off	22	C	21.9	C	22.1	C	21.9	C

Analysis performed with Highway Capacity Software (Merge/Diverge)
Density = Passenger Cars per lane per mile
LOS = Level of service defined by HCS output

Caltrans Freeway Segments

Existing plus project traffic on Interstate 15 segments north and south of SR-76 were analyzed with the Caltrans' Volume to Capacity methodology and are summarized on Table 17. As shown on Table 17, freeway segments operate acceptably and the project does not contribute significantly. No mitigation is required.

Caltrans ILV Analysis

Caltrans ILV Analysis for the existing plus project condition is summarized in Table 18. As shown on Table 18, the existing plus project traffic exceeds the Caltrans thresholds at the northbound ramp in the PM peak hour. Although the intersection operates efficiently with the addition of the project using coordination software, a mitigation measure is proposed to provide an additional eastbound left lane and the project will pay a fair share of this improvement.

Project Impact on Road Surface on SR-76

As noted in prior traffic studies for the project and in the prior FEIR, a large percentage of heavy trucks associated with the landfill could degrade the structural integrity of SR 76. Caltrans staff have indicated that based on the 20-year life, a Traffic Index of 12.0, and soil types, the structural section of SR 76 in the project vicinity may require an increased asphalt concrete thickness for the travel way and shoulders. To mitigate this potential impact to a level of insignificance, mitigation measure 4.5-1 will be included requiring the project applicant to conduct a structural analysis of SR 76 and determine the structural requirements along SR 76 from the Rosemary Mountain Palomar Aggregates project to the proposed landfill entrance to determine whether the existing foundation can accommodate anticipated heavy truck loads. The applicant shall obtain certification from Caltrans for adequate pavement surface to be enforced by the County Department of Public Works. This analysis shall be extended west of the I-15 ramps if the Palomar Aggregates project is not implemented. Construction of the recommended pavement improvements, consistent with Caltrans requirements shall be implemented prior to operation of the landfill, if determined necessary, and a fair share contribution made by the applicant. With this mitigation measure, any potential impacts of project traffic on the surface of SR 76 will be mitigated to a level of insignificance.

Table 17 - Existing Plus Project Freeway Segment Level of Service

Interstate 15 Segment Limits	# Lanes	Peak Capac	Peak Hr. %	Dir. Split	Truck Factor	Existing (No Project) ADT	V/C	LOS	Existing (Plus Project) ADT	V/C	LOS	Incr. V/C	Sign?
North of State Route 76	4	9200	7.35%	55%	10.23%	135000	0.654	C	135209	0.655	C	0.001	No
South of State Route 76	4	9200	6.82%	55%	8.14%	132000	0.582	B	133605	0.589	B	0.007	No

Lanes = Number of lanes in one direction; Peak Capac = peak capacity in one direction

Peak Hr % = peak hour percentage per ratio of peak hour versus average daily traffic (per Caltrans Traffic Volumes)

Dir. Split = directional split percentage of peak hour traffic traveling in peak direction; Truck Factor = influence of heavy vehicles

ADT = average daily traffic; V/C = volume to capacity ratio per Caltrans District 11 methodology; LOS = Level of service A to F, including F(0) to F(3)

Sign? = significance? Yes or no; per City of San Diego thresholds

Calculation formula = ((ADT*PH%*Dir. Split)+Truck Factor) / Peak Capacity

Table 18 - Summary of Existing Plus Project Intersection Operation Caltrans Intersecting Lane Volumes (ILV)						
	Existing Condition		Existing + Project			
Intersection	AM Peak ILV	PM Peak ILV	AM Peak ILV	AM Incr. ILV	PM Peak ILV	PM Incr. ILV
State Route 76/Highway 395	977	949	982	5	955	6
State Route 76/Interstate 15 South	1015	1152	1103	88	1256	104
State Route 76/Interstate 15 North	755	1479	843	88	1583	104

ILV=Intersecting Lane Volumes (Caltrans Methodology)
ILV Value = less than 1200 (Free Flow)
ILV Value = 1200-1500 (Acceptable Flow)
ILV Value = exceeds 1500 (Deficient Flow)
AM Incr ILV = AM peak hour increase in ILV value due to project
PM Incr ILV = PM peak hour increase in ILV value due to project

Project Impact Potential to Accident Rates on SR-76

As previously stated, the accident rate per million vehicle miles for SR-76 is higher than the State average for similar two lane highways. The rate of accidents on any segment of the State Highway is related to a variety of conditions and situations, no single criteria is the cause of a higher than average accident rate. The addition of traffic to a facility, in fact, will mathematically reduce the accident rate per million vehicle miles. As such, the addition of Gregory Canyon project traffic onto this facility does not have a significant impact on the accident rate.

NEAR TERM CUMULATIVE CONDITIONS

Intersections

Intersection operation for the Near Term Cumulative condition is summarized on Table 19. As shown on Table 19, the intersection of Interstate 15 Northbound/State Route 76 demonstrates a deficiency. This intersection requires an additional eastbound to northbound left turn lane and a westbound through lane. This is considered a cumulative impact and the project will participate in the County's TIF program to fully mitigate its cumulative impacts at intersections.

Peak Hour Roadway Segment Operation

Due to the volume of traffic attributable to the significant list of cumulative projects, the LOS D criteria for peak hourly operation on SR-76 would be exceeded and result in LOS E with these projects constructed and occupied during both the morning and evening peak hours as shown on Table 20. As such, the project is considered part of the cumulative deficiency and the need for improvements. The project is considered to have a cumulative impact on State Route 76 and will participate in the County's TIF program to fully mitigate its cumulative impacts on roadway segments.

Table 19 - Near Term Cumulative Intersection Level of Service Summary

Intersection	Crit. Mvmt.	Existing (A)		Near Term (B)		Near Term+Proj (C)		Cuml. Contrib. (C)-(A)			Project Contribution (C)-(B)		
		Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh	LOS	Δ Delay	Cuml Traffic	Cuml. Impact?	Δ Delay	Proj Traffic	Proj Impact
AM PEAK HOUR													
SR-76/Old Highway 395	Int.	29.2	C	31.6	C	31.9	C	2.7	221	N/A	0.3	10	None
SR-76/Interstate 15 South	Int.	20.1	C	34.1	C	44.0	C	23.9	630	N/A	9.9	78	None
SR-76/Interstate 15 North	Int.	21.1	C	42.0	C	44.1	D	23.0	766	N/A	2.1	88	None
.SR-76/Project Access	WB	N/A		N/A		10.3	B		739	N/A		98	None
	NB					20.9	C						
PM PEAK HOUR													
SR-76/Old Highway 395	Int.	24.9	C	30.4	C	33.7	C	8.8	320	N/A	3.3	12	None
SR-76/Interstate 15 South	Int.	19.2	B	47.2	D	53.8	D	34.6	805	N/A	6.6	92	None
SR-76/Interstate 15 North	**Int.**	**52.4**	**D**	**111.2**	**F**	**118.7**	**F**	**66.3**	**1156**	**Yes**	**7.5**	**104**	**Cuml.**
SR-76/Project Access	WB	N/A		N/A		11.2	B		1121	N/A		116	None
	NB					32.6	D						

Delay is measured in seconds per vehicle; Δ Delay=change in delay; LOS=level of service; N/A=not applicable to LOS D or better

Cuml Contrib=Cumulative Contribution represents change over existing conditions including all projects plus proposed project

Project Contribution=incremental change associated with proposed project (Near Term with Project less Near Term without project)

Cuml Impact=Cumulative Impacts associated with the addition of all cumulative projects including proposed project

Project Impacts represent whether the project is a considerable portion of the total cumulative impacts

Delay and LOS calculated using SYNCHRO/HCS; Crit. Mvmt = Critical Movement; WB=westbound, NB=northbound, etc.

Project significance based on County thresholds

Table 20 - Summary of Peak Hour Volumes on State Route 76 Redistributed - Near Term Cumulative Condition - 5,000 tpd

	SR-76 Segment (Redistributed Project Traffic)																			
	West of 395				I-15/Pankey				Pankey/Couser				Couser/Project				East of Project			
Time	Near Term	LOS	w/Proj	LOS	Near Term	LOS	w/Proj	LOS	Near Term	LOS	w/Proj	LOS	Near Term	LOS	w/Proj	LOS	Near Term	LOS	w/Proj	LOS
AM Peak	1452	E	1468	E	1463	E	1679	E	1480	E	1696	E	1468	E	1684	E	1474	E	1484	E
PM Peak	2047	E	2067	E	2188	E	2299	E	2346	E	2457	E	2346	E	2457	E	2365	E	2376	E

Source: February 2005 Traffic Counts; Project Traffic of 1982 vehicles is 95% west oriented from 2085 total

Peak Hour LOS D Maximum is **1316** Vehicles based on latest software version; LOS E Maximum is **2628** based on software

Ramp Operation

Ramp operation for the Near Term Cumulative condition is summarized on Table 21. As shown on Table 21, freeway ramps operate acceptably. No mitigation is required.

Caltrans Freeway Segments

Near Term Cumulative traffic on Interstate 15 segments north and south of SR-76 were analyzed with the Caltrans' Volume to Capacity methodology and are summarized on Table 22. As shown on Table 22, freeway segments operate acceptably and the project does not contribute significantly. No mitigation is required.

Table 21 - Summary of Near Term Cumulative Ramp Operation

	Near Term (No Project)				Near Term Plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
Ramp ID	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**
SR-76/I-15 North On	19.6	B	20.6	C	19.6	B	20.6	C
SR-76/I-15 North Off	24.5	C	27.1	C	25	C	27.6	C
SR-76/I-15 South On	19.8	B	19.8	B	20	B	20	B
SR-76/I-15 South Off	23.2	C	23.4	C	23.3	C	23.4	C

Analysis performed with Highway Capacity Software (Merge/Diverge)
Density = Passenger Cars per lane per mile
LOS = Level of service defined by HCS output

Caltrans ILV Analysis

Caltrans ILV Analysis for the Near Term Cumulative condition is summarized in Table 23. As shown on Table 23, the near term traffic through intersections exceeds Caltrans values at the I-15 Northbound ramp with SR-76. This intersection can be mitigated with an additional eastbound left and westbound through lane. The project will make a fair share contribution for these lanes as described in mitigation measure 4.5-5. The I-15 Southbound ramp exceeds Caltrans numeric capacity, yet operates adequately using coordination software. No mitigation is recommended for the I-15 southbound intersection with SR-76.

Figure 10 graphically depicts the Caltrans ILV for SR-76/Highway 395. Figure 11 depicts the ILV for SR-76/Interstate 15 Southbound; and Figure 12 depicts the ILV for SR-76/Interstate 15 Northbound, with Figure 13 demonstrating the mitigation at the northbound ramp satisfies the Caltrans ILV methodology.

YEAR 2030 TRAFFIC CONDITIONS

Traffic volumes for the future condition are generated based on the County of San Diego's 2020 General Plan (which forecast 2030 traffic), using the Board Alternative Map - Existing Plus CIP Network and evaluated for consistency with the SANDAG series 10 model. This model was chosen over the Draft Land Use Map, due to the volumes in the Draft Land Use Map being significantly less than the Board Alternative, and less than the cumulative condition traffic volumes.

Table 22 - Near Term Freeway Segment Level of Service

Interstate 15	#	Peak	Peak	Dir.	Truck	Near Term (No Project)			Near Term (Plus Project)				
Segment Limits	Lanes	Capac	Hr. %	Split	Factor	ADT	V/C	LOS	ADT	V/C	LOS	Incr. V/C	Sign?
North of State Route 76	4	9200	7.35%	55%	10.23%	138800	0.672	C	139009	0.673	C	0.001	No
South of State Route 76	4	9200	6.82%	55%	8.14%	139200	0.614	B	140805	0.621	B	0.007	No

Lanes = Number of lanes in one direction; Peak Capac = peak capacity in one direction

Peak Hr % = peak hour percentage per ratio of peak hour versus average daily traffic (per Caltrans Traffic Volumes)

Dir. Split = directional split percentage of peak hour traffic traveling in peak direction; Truck Factor = influence of heavy vehicles

ADT = average daily traffic; V/C = volume to capacity ratio per Caltrans District 11 methodology; LOS = Level of service A to F, including F(0) to F(3)

Sign? = significance? Yes or no; per City of San Diego thresholds

Calculation formula = ((ADT*PH%*Dir. Split)+Truck Factor) / Peak Capacity

Table 23 - Summary of Near Term Cumulative Intersection Operation Caltrans Intersecting Lane Volumes (ILV)						
	Near Term (No Project)		Near Term With Project			
Intersection	AM Peak ILV	PM Peak ILV	AM Peak ILV	AM Incr. ILV	PM Peak ILV	PM Incr. ILV
State Route 76/Highway 395	1137	1128	1141	4	1133	5
State Route 76/Interstate 15 South	1416	1667	1503	87	1771	104
State Route 76/Interstate 15 North	1151	2060	1336	185	2164	104

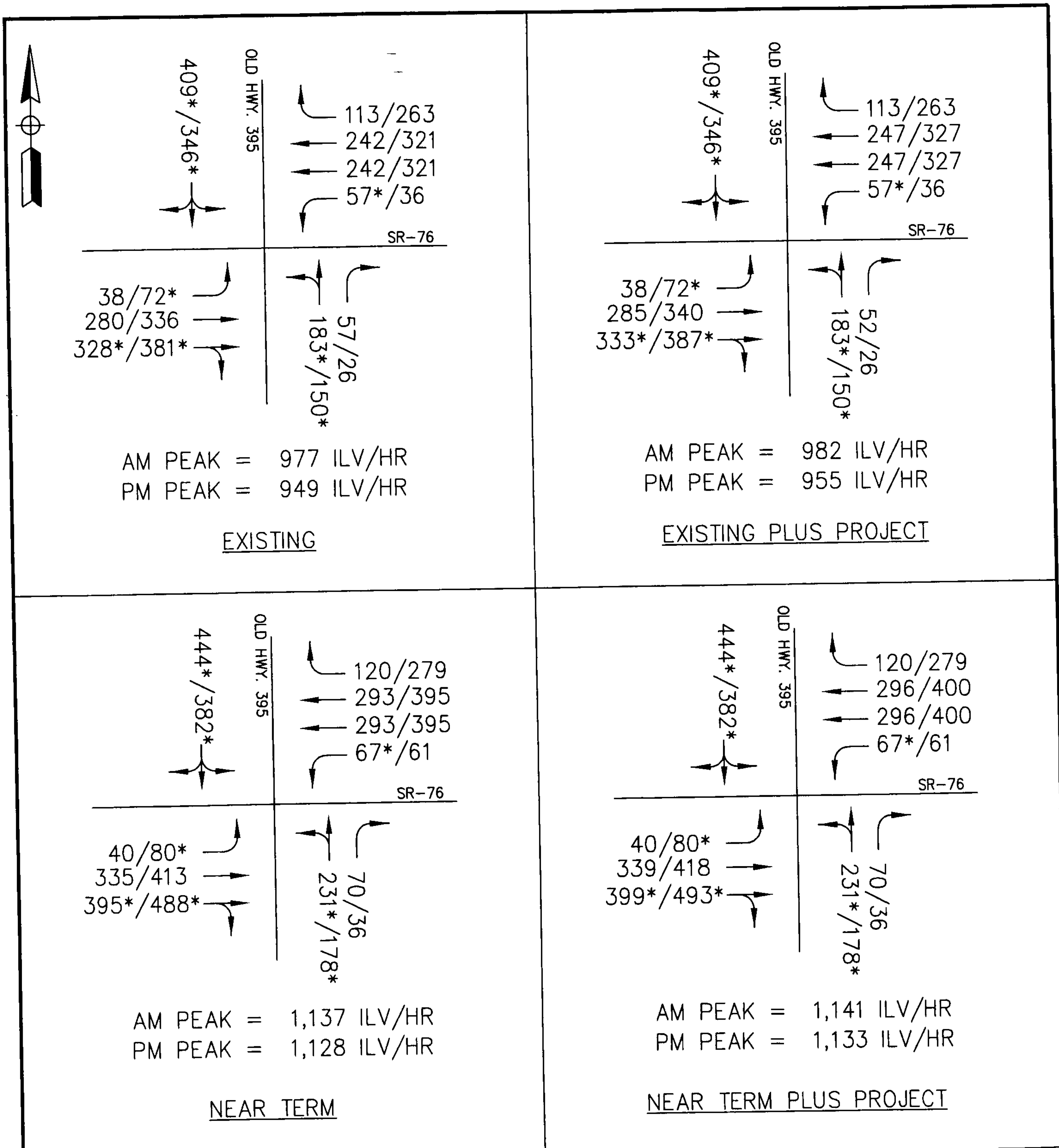
ILV=Intersecting Lane Volumes (Caltrans Methodology)
ILV Value = less than 1200 (Free Flow)
ILV Value = 1200-1500 (Acceptable Flow)
ILV Value = exceeds 1500 (Deficient Flow)
AM Incr ILV = AM peak hour increase in ILV value due to project
PM Incr ILV = PM peak hour increase in ILV value due to project

Compared to the current SANDAG Series 10 model, between the project and Pankey Road, both models are nearly identical. From Pankey to I-15, the SANDAG model shows only 24,000 vehicles whereas the County model (which includes land use densities on Pankey Road) shows 44,000 vehicles. This study uses the worst case volumes through the County model due to the input of all surrounding land uses which are not indicated within the SANDAG model.

Intersection volumes were generated by factoring near term cumulative volumes by similar increases to the forecasted daily traffic. The forecast shows nominal increase east of Couser Canyon Road (less than 3%), but an increase of 28% between Pankey and Couser Canyon; 114% between Pankey and I-15; 35% increase between I-15 and Highway 395, and 30% increase west of Highway 395. Traffic volumes for the future condition are summarized in Figure 14 (without project) and Figure 15 (including project).

Year 2030 Intersection Operation

Year 2030 intersection operation is summarized on Table 24. As shown on Table 24, all study intersections report deficiencies without improvement from the existing condition. The project is considered part of the cumulative need for future improvements and will participate in the County's TIF program to fully mitigate its future impacts at intersections.



LEGEND

XX/YY – AM/PM PEAK TURN VOLUMES

* – CRITICAL MOVEMENT

——→ – TRAVEL LANE

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FIGURE 10

SR-76 / HWY 395 – ILV ANALYSIS

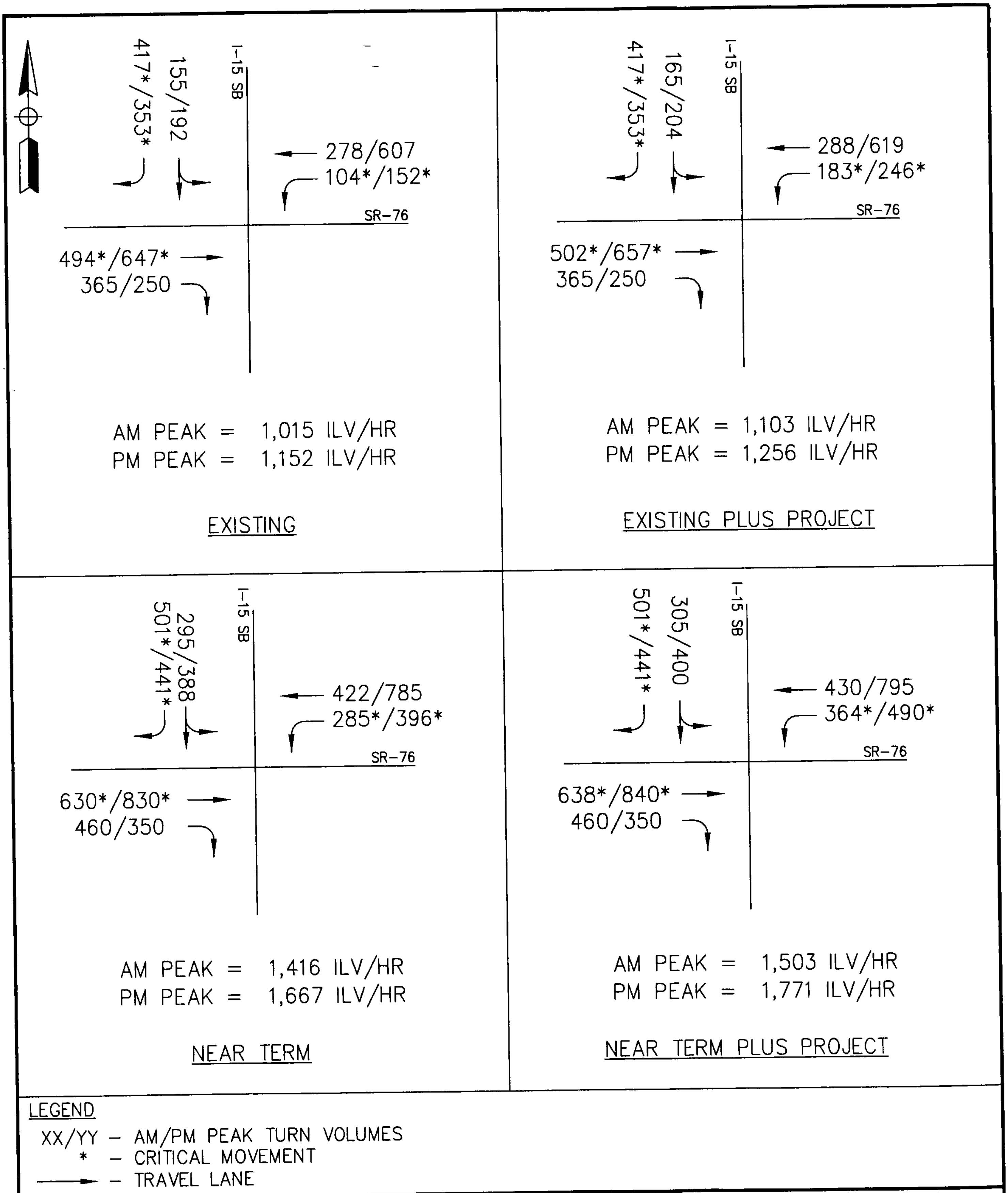

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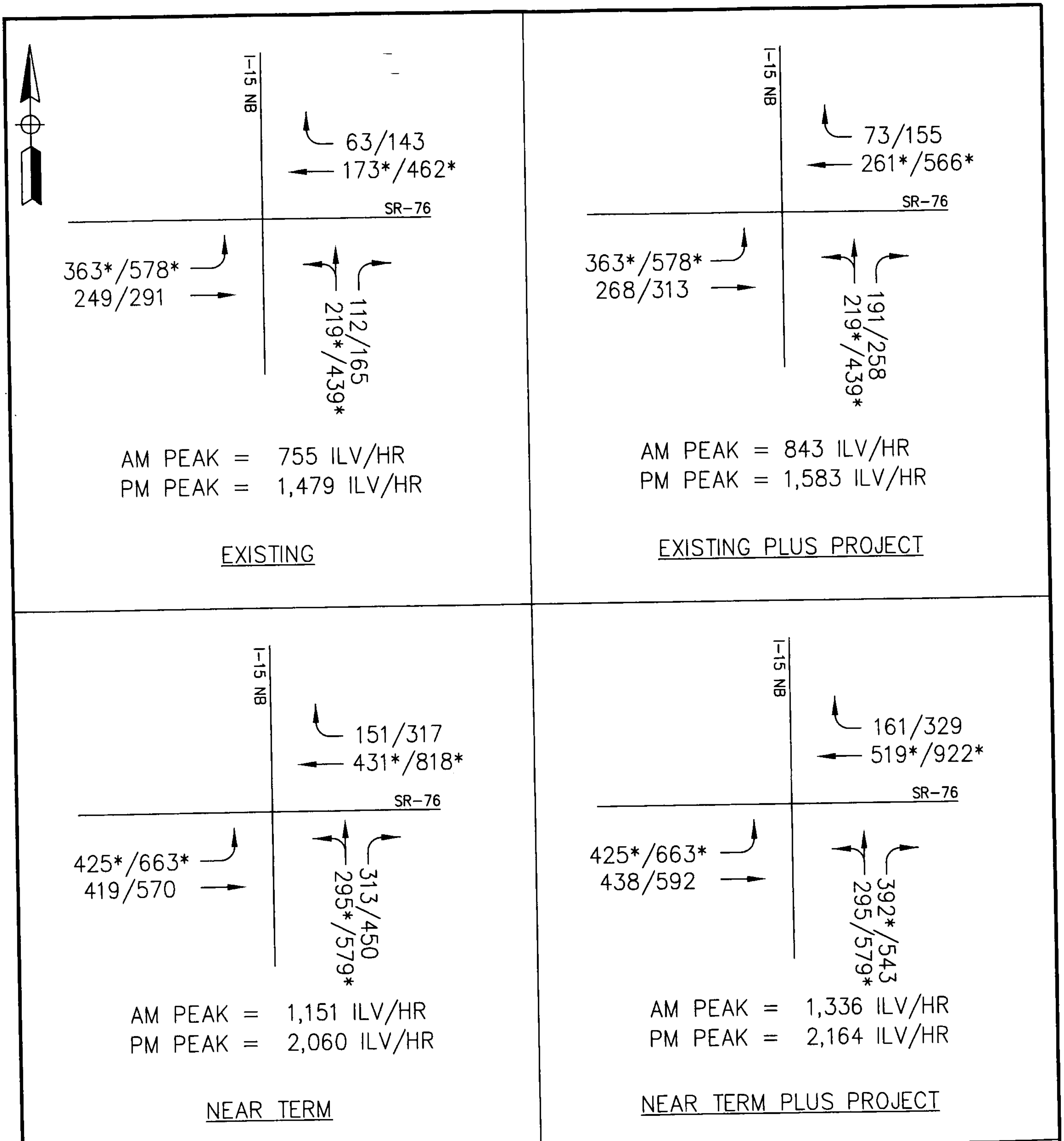
FIGURE 11

SR-76/I-15 SOUTH – ILV ANALYSIS



LEGEND

XX/YY – AM/PM PEAK TURN VOLUMES
* – CRITICAL MOVEMENT
⟶ – TRAVEL LANE

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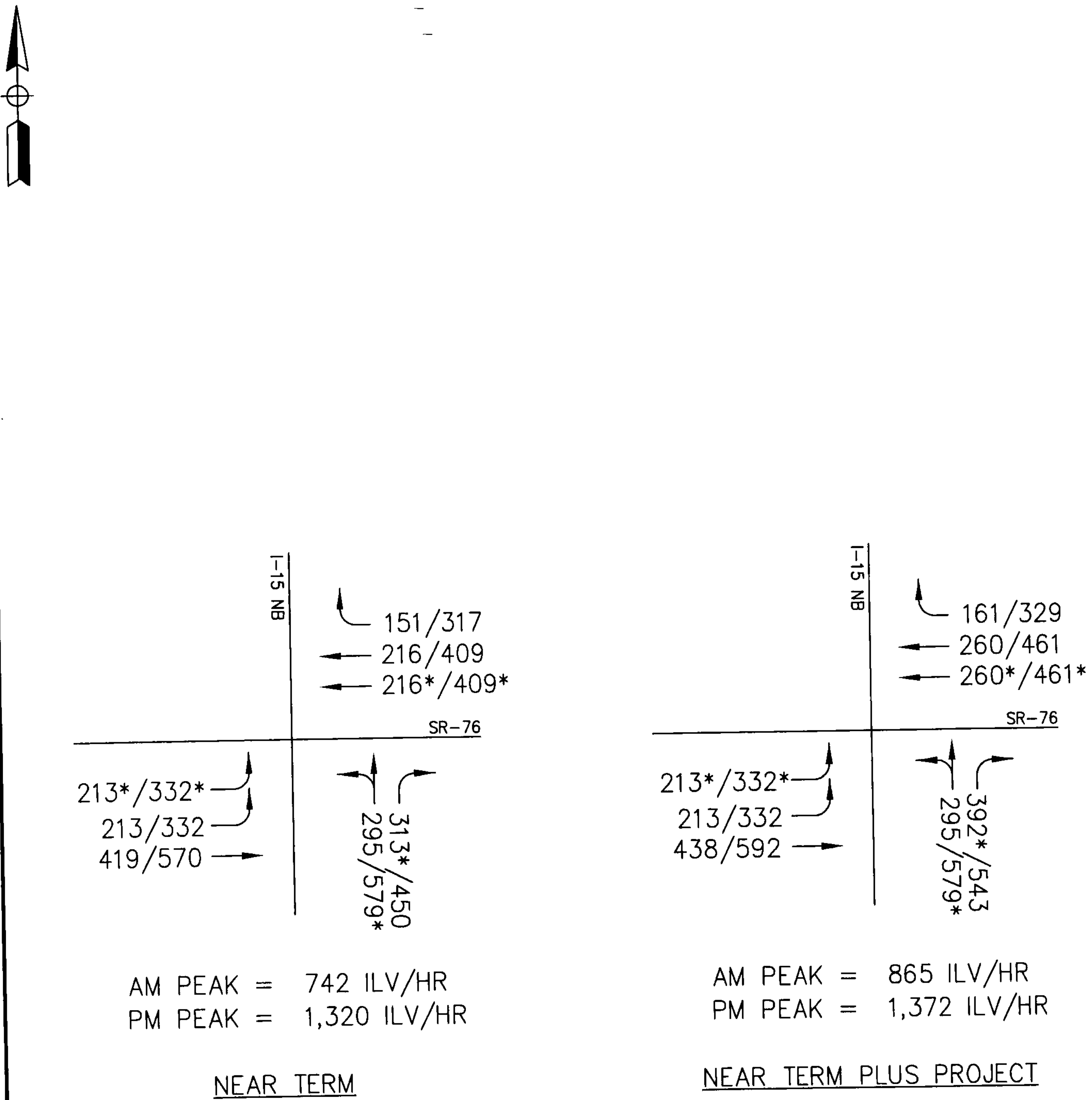
FIGURE 12

SR-76/I-15 NORTH – ILV ANALYSIS



LEGEND

XX/YY – AM/PM PEAK TURN VOLUMES

* – CRITICAL MOVEMENT

⟶ – TRAVEL LANE

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FIGURE 13

MITIGATED – SR-76/I-15 NB INTERSECTING LANE VOLUMES (ILV)

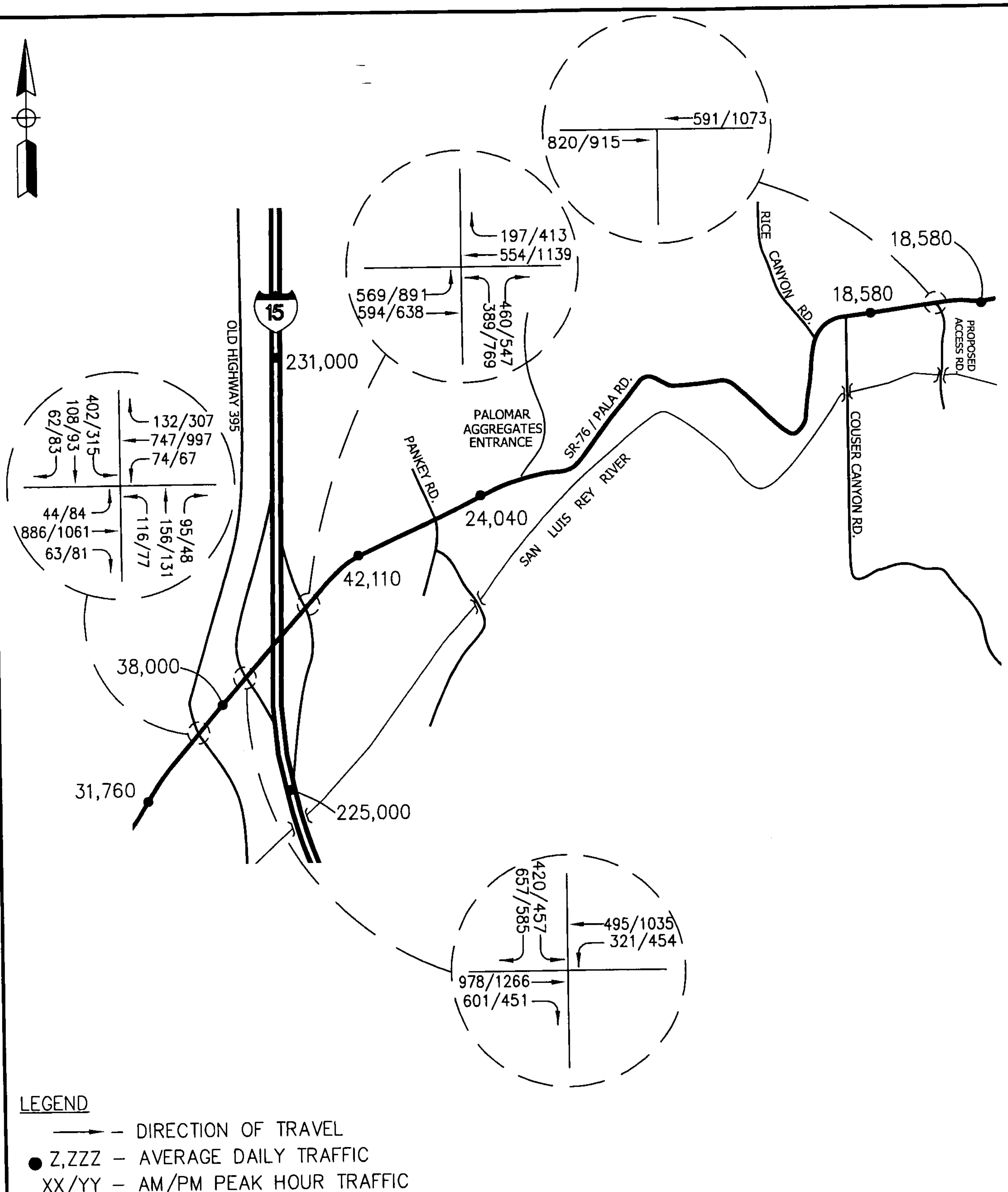

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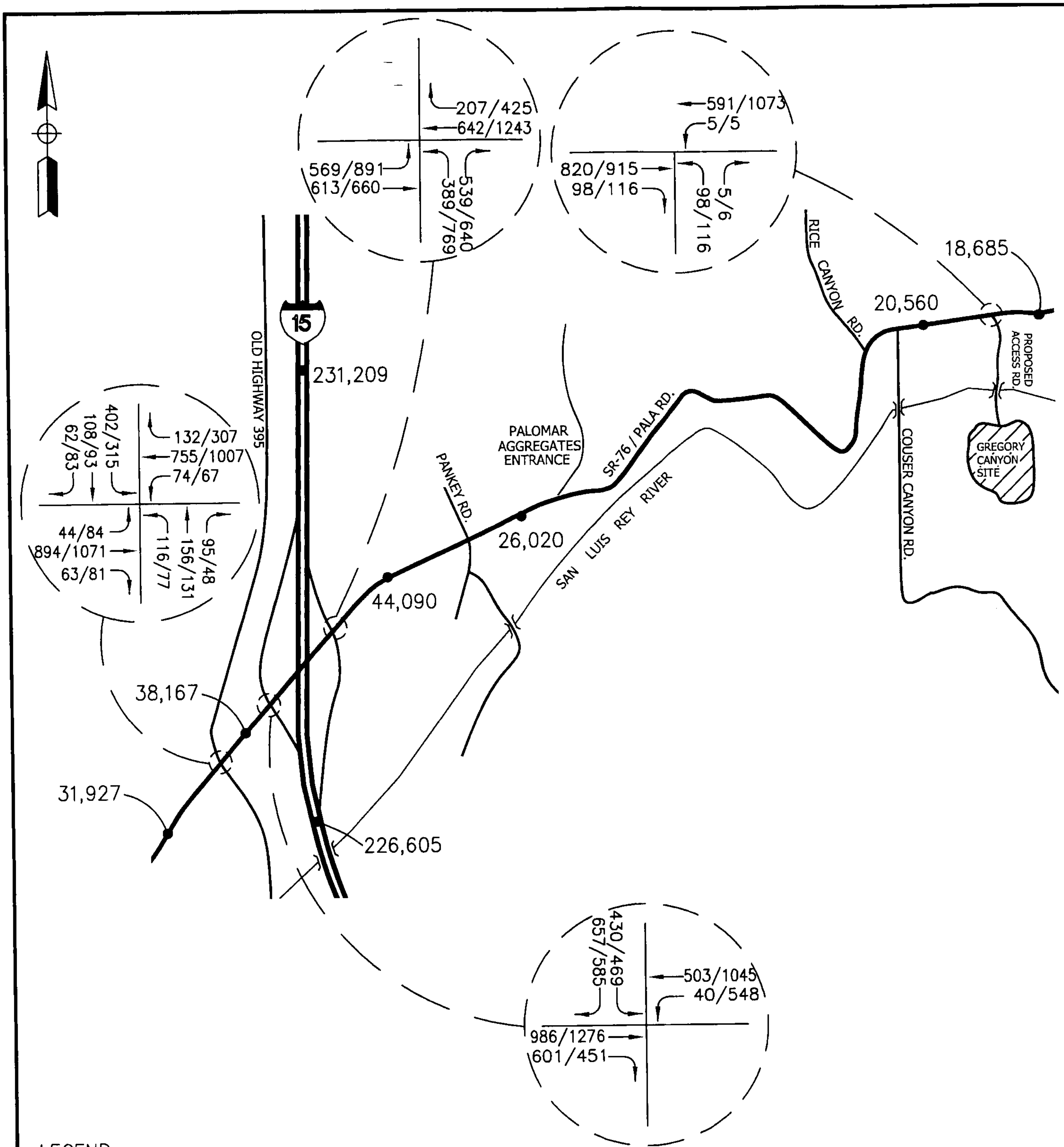
FIGURE 14

YEAR 2030 (NO PROJECT)



LEGEND

—— DIRECTION OF TRAVEL

● Z,ZZZ – AVERAGE DAILY TRAFFIC

XX/YY – AM/PM PEAK HOUR TRAFFIC

[hatched box] – PROJECT SITE

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FIGURE 15

YEAR 2030 WITH PROJECT

Table 24 - Year 2030 Plus Project Intersection Level of Service Summary									
AM PEAK HOUR									
		2030 (No Project)		Year 2030 (With Project)					
Intersection	Crit Mvmt.	Delay sec/veh	LOS	Delay sec/veh	LOS	Δ Delay	Max Critical Movement	Proj Signif?	Proj. Impact
SR-76/Old Highway 395	Int.	58.3	E	59.2	E	0.9	8	Yes	Cumulative
SR-76/Interstate 15 South	Int.	108.8	F	118.8	F	10.0	79	Yes	Cumulative
SR-76/Interstate 15 North	Int.	77.5	E	100.0	F	22.5	88	Yes	Cumulative
SR-76/Project Access	WB	N/A		9.8	A		98	N/A	None
	NB			17.5	C				
PM PEAK HOUR									
SR-76/Old Highway 395	Int.	54.3	D	55.5	E	1.2	10	Yes	Cumulative
SR-76/Interstate 15 South	Int.	119.9	F	125.0	F	5.1	94	Yes	Cumulative
SR-76/Interstate 15 North	Int.	160.3	F	170.1	F	9.8	104	Yes	Cumulative
SR-76/Project Access	WB	N/A		10.3	B		116	N/A	None
	NB			26.1	D				

Delay is measured in seconds per vehicle; LOS=level of service; Δ Delay=change in delay;
Max Critical Movement = maximum vehicles in single critical movement
Delay and LOS calculated using SYNCHRO; Int.=Intersection; EB=eastbound, NB=northbound
Proj Signif? = Project significance based on County of San Diego's *Guidelines for Determining Significance*

Year 2030 Roadway Segment Operation

Year 2030 intersection operation is summarized on Table 25 based on daily traffic analyses. As shown on Table 25, all study roadway segments report deficiencies without improvement from the existing condition. The project is considered part of the cumulative need for future improvements and will participate in the County's TIF program to fully mitigate its future impacts on roadway segments.

Year 2030 Ramp Operation

Ramp operation for the year 2030 is summarized on Table 26. As shown on Table 26, all ramps operate efficiently for the future condition. No ramp improvements are required.

Year 2030 Caltrans Freeway Segment Operation

Freeway segment operation for the future condition is summarized on Table 27. As shown on Table 27, freeway segments north and south of SR-76 are deficient with or without the project. The project is an insignificant portion of the traffic on freeway segments and is not required to mitigate the deficiency.

Year 2030 Intersecting Lane Volumes

Year 2030 ILV analysis is summarized on Table 28. As shown on Table 28, all intersections fail without improvement over the existing configurations. The project is part of the cumulative deficiency and will participate in the County's TIF program to fully mitigate its future impacts at intersections. Graphic depictions of the future ILV analysis are presented on Figure 16 (Highway 395); Figure 17 (Interstate 15 Southbound) and Figure 18 (Interstate 15 Northbound).

Table 25 - Year 2030 Roadway Segment Level of Service Summary

Roadway Segment	Maximum Capacity	Year 2030 ADT	Year 2030 LOS	Year 2030 Plus Project Proj Traffic	ADT	LOS	Significant	Impact
SR-76: west of Hwy 395	16200	31760	F	167	31927	F	Yes	Cumulative
SR-76: Hwy 395/I-15	34200	38000	F	167	38167	F	Yes	Cumulative
SR-76: I-15/Pankey	16200	42110	F	1980	44090	F	Yes	Cumulative
SR-76: Pankey/Palomar	16200	24040	F	1980	26020	F	Yes	Cumulative
SR-76: Palomar/Couser	16200	24040	F	1980	26020	F	Yes	Cumulative
SR-76: Couser/Gregory Cyn	16200	18580	F	1980	20560	F	Yes	Cumulative
SR-76: east of Gregory Cyn	16200	18580	F	105	18685	F	Yes	Cumulative

ADT=Average daily traffic; LOS=level of service

Project significance/impact based on County of San Diego's *Guidelines for Determining Significance*

Maximum Capacity per County of San Diego Public Road Standards

Table 26 - Summary of Year 2030 Ramp Operation

Ramp ID	Year 2030 (No Project) AM Peak Density	LOS	PM Peak Density	LOS	Year 2030 (With Project) AM Peak Density	LOS	PM Peak Density	LOS
SR-76/I-15 North On	20.1	C	21.4	C	20.1	C	21.4	C
SR-76/I-15 North Off	24.7	C	27.3	C	25.1	C	27.8	C
SR-76/I-15 South On	20.2	C	20.2	C	20.4	C	20.4	C
SR-76/I-15 South Off	26	C	25.8	C	26	C	25.8	C

Analysis performed with Highway Capacity Software (Merge/Diverge)

Density = Passenger Cars per lane per mile

LOS = Level of service defined by HCS output

Table 27 - Year 2030 Freeway Segment Level of Service

Interstate 15	#	Peak	Peak	Dir.	Truck	Future (no project)			Future (with project)				
Segment Limits	Lanes	Capac	Hr. %	Split	Factor	ADT	V/C	LOS	ADT	V/C	LOS	Incr. V/C	Sign?
North of State Route 76	4	9200	7.35%	55%	10.23%	231000	1.119	F(0)	231209	1.120	F(0)	0.001	No
South of State Route 76	4	9200	6.82%	55%	8.14%	225000	0.992	E	226605	0.999	E	0.007	No

Lanes = Number of lanes in one direction; Peak Capac = peak capacity in one direction

Peak Hr % = peak hour percentage per ratio of peak hour versus average daily traffic (per Caltrans Traffic Volumes)

Dir. Split = directional split percentage of peak hour traffic traveling in peak direction; Truck Factor = influence of heavy vehicles

ADT = average daily traffic; V/C = volume to capacity ratio per Caltrans District 11 methodology; LOS = Level of service A to F, including F(0) to F(3)

Sign? = significance? Yes or no; per City of San Diego thresholds

Calculation formula = ((ADT*PH%*Dir. Split)+Truck Factor) / Peak Capacity

Table 28 - Summary of Year 2030 Intersection Operation Caltrans Intersecting Lane Volumes (ILV)						
	Year 2030 (No Project)		**Year 2030 (With Project)**			
Intersection	**AM Peak ILV**	**PM Peak ILV**	**AM Peak ILV**	**AM Incr. ILV**	**PM Peak ILV**	**PM Incr. ILV**
State Route 76/Highway 395	1424	1394	1429	5	1400	6
State Route 76/Interstate 15 South	1957	2307	2047	90	2409	102
State Route 76/Interstate 15 North	1583	2799	1750	167	2903	104

ILV=Intersecting Lane Volumes (Caltrans Methodology)
ILV Value = less than 1200 (Free Flow)
ILV Value = 1200-1500 (Acceptable Flow)
ILV Value = exceeds 1500 (Deficient Flow)
AM Incr ILV = AM peak hour increase in ILV value due to project
PM Incr ILV = PM peak hour increase in ILV value due to project

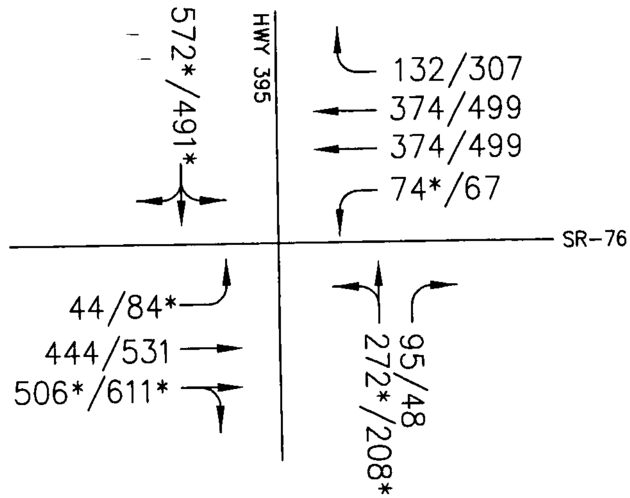
TRAFFIC NEEDS ASSESSMENT STUDY

Darnell & Associates has reviewed and evaluated the accuracy and reliability of traffic data contained in the March 2003 Tribal Study as ordered by Judge Anello. This review has included an evaluation of traffic data in the 2003 Tribal Traffic Study with data and evaluations contained in this traffic report.

In March 2003 the County released a Tribal traffic study entitled "Traffic Needs Assessment of Tribal Development Projects In The San Diego Region" (Tribal Traffic Study). This traffic analysis was based upon traffic volumes that were obtained from the 2000 traffic flow map for the San Diego Metropolitan area prepared by SANDAG and the San Diego County Master Traffic Census prepared by the County Department of Public Works. Estimations for casino operations were then added to these baseline conditions based upon the assumption that gaming facilities would result in 100 average daily trips for each 1000 square feet of gaming area and the further assumption that each hotel room would generate 3 trips per room. The analysis assumed complete build-out of all Tribal projects and adjusted trip distribution assumptions in order to account for build-out of the County's Circulation Element roadway system

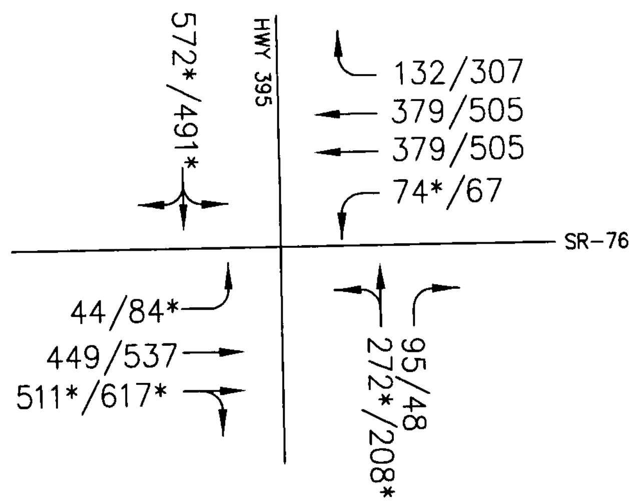
The 3 tribal projects used in analyzing traffic impacts to SR 76 in the Tribal Traffic Study were the Pala, Pauma and Rincon gaming and resort project. This study assumed that the Pala Reservation would generate 7,550 daily trips, the Pauma Reservation would generate 4,000 daily trips, and the permanent Rincon Reservation facilities would generate 6,500 daily trips. The Tribal Traffic Study determined that SR 76 east of I-15 was operating at an acceptable LOS B condition under existing baseline conditions and determined that SR-76 would be operating at an acceptable LOS A through C condition when each of the Pala, Pauma and Rincon projects were added to baseline traffic. However, the study concluded that portions of SR 76 would operate below LOS D based upon both near term cumulative and 2020 cumulative traffic conditions on SR 76.

There are a number of factors that make the 2003 Tribal Traffic Study less reliable than this current traffic study and it should not be relied upon to accurately determine existing traffic conditions on SR 76 or cumulative traffic conditions. The Tribal Traffic Study was based upon projected traffic conditions on SR 76 using a 2000 traffic flow map. By contrast, the enclosed traffic study is based upon actual counts



AM PEAK = 1,424 ILV/HR
PM PEAK = 1,394 ILV/HR

YEAR 2030 – NO PROJECT



AM PEAK = 1,429 ILV/HR
PM PEAK = 1,400 ILV/HR

YEAR 2030 PLUS PROJECT

LEGEND
XX/YY – AM/PM PEAK TURN VOLUMES
* – CRITICAL MOVEMENT
——► – TRAVEL LANE

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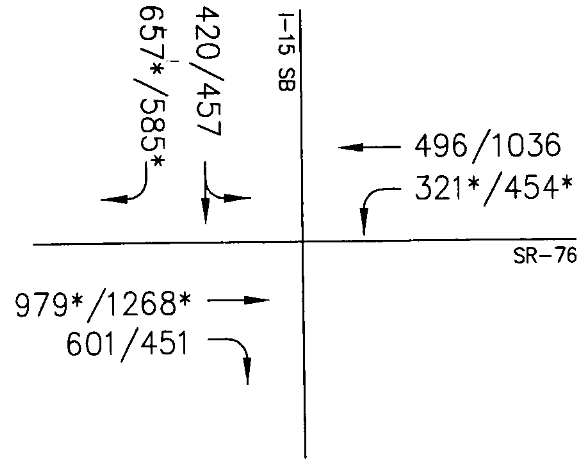
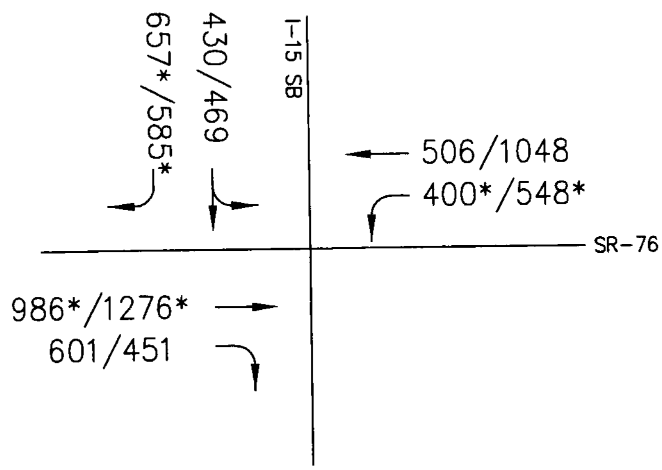
FIGURE 16
INTERSECTING LANE VOLUMES (ILV)
SR-76 / HIGHWAY 395



AM PEAK = 1,957 ILV/HR
PM PEAK = 2,307 ILV/HR

YEAR 2030 – NO PROJECT



AM PEAK = 2,047 ILV/HR
PM PEAK = 2,409 ILV/HR

YEAR 2030 PLUS PROJECT

LEGEND

XX/YY – AM/PM PEAK TURN VOLUMES
* – CRITICAL MOVEMENT
⟶ – TRAVEL LANE

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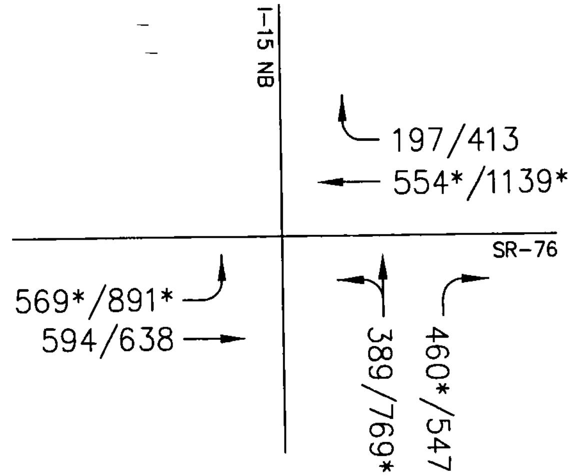
FIGURE 17

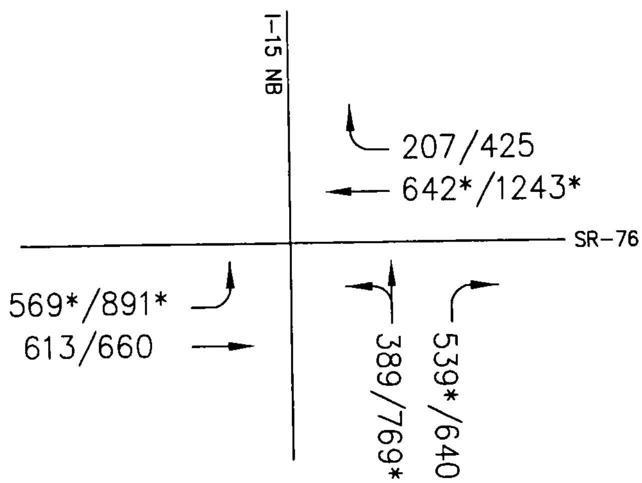
INTERSECTING LANE VOLUMES (ILV)

SR-76 / I-15 SOUTH



AM PEAK = 1,583 ILV/HR
PM PEAK = 2,799 ILV/HR

2030 - NO PROJECT



AM PEAK = 1,750 ILV/HR
PM PEAK = 2,903 ILV/HR

YEAR 2030 PLUS PROJECT

LEGEND
XX/YY - AM/PM PEAK TURN VOLUMES
* - CRITICAL MOVEMENT
——→ - TRAVEL LANE

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FIGURE 18
INTERSECTING LANE VOLUMES (ILV)
SR-76 / I-15 NORTH

taken in March 2005. These more recent traffic counts are far more accurate in determining actual existing traffic conditions on SR 76 than the projections based upon 2000 traffic flow data contained in the Tribal Traffic Study. In projecting future casino traffic on SR 76, the Tribal Traffic Study made assumptions about trips generated by casino operations. New traffic counts incorporate actual data which include existing traffic on SR 76 generated by the operational Pala, Pauma and Rincon gaming and resort projects. Accordingly, the actual count data currently includes traffic generated by these operational casino projects. That is far more accurate than the assumptions made to support future projections of traffic on SR 76 contained in the Tribal Traffic Study. In addition, the 2003 Tribal Traffic Study assumed ultimate build out of the Pala, Pauma and Rincon gaming and resort projects. Ultimate build out of these projects has not yet occurred but will occur over time as these projects are ultimately completed.

The Highway Capacity Manual (HCM) bases the evaluation of service levels on two-lane highways such as SR-76 on the number of vehicles per any given hour and not upon a general traffic load per day. The Tribal Traffic Study did not utilize the Highway Capacity Manual in determining levels of service on SR-76 based upon peak hourly conditions as prescribed in the HCM. This traffic study properly utilizes criteria contained in the HCM in assessing the operational characteristics of SR-76.

The cumulative traffic conditions on SR-76 were evaluated in the Tribal Traffic Study based upon older Series 8 SANDAG projections. Subsequent to this study, SANDAG approved the more recent Series 9 and Series 10 SANDAG forecasts that incorporate more recent land use plans and development constraints into their modeling assumptions. The Series 8 projections contained in the Tribal Traffic Study are no longer reliable since SANDAG has now adopted far more recent models to use in regional transportation planning and forecasting. The 2003 Tribal Traffic Study was not based upon a careful evaluation of cumulative projects and did not consider changing land use patterns caused by the County's current processing of General Plan 2020 that will significantly reduce the intensity of land use development in some of the non-urban areas of the County including areas surrounding SR-76.

The cumulative traffic conditions contained herein are far more reliable; since they are based upon a recent list of projects undergoing processing that would impact SR-76 and are based upon a 2030 cumulative analysis that considers changes currently being made as part of the County's 2020 General Plan process and the newer and more accurate SANDAG Series 10 Model. For these reasons, the above traffic study is more reliable than the Tribal Traffic Study which should not be relied upon to accurately assess either existing or future cumulative traffic conditions on SR-76 or other area roadways.

SECTION V - ACCESS, INTERNAL CIRCULATION, OFF-SITE CIRCULATION

PROJECT ACCESS

The proposed access road is approximately 1.1 miles east of Couser Canyon Road and will travel south from SR-76, cross the San Luis Rey River and turn easterly to reach the landfill site. The applicant proposes to widen and realign SR-76 on either side of the access road for a distance of approximately 1,700 feet to provide acceleration and deceleration to/from the project driveway. Sight distance will be improved to provide a minimum of 1,000 feet in both directions. No vegetation or structures will obstruct this minimum sight distance. No changes to the conceptual striping plan have been implemented from previous plan submittals to the County. A copy of the conceptual plan is provided in Appendix K.

The project access was analyzed for level of service utilizing the above assumptions for lane configuration, including one lane for egress. Both morning and evening peak periods will achieve acceptable levels of service D or better under the worst-case future conditions traffic volumes and does not require signalization or other additional improvements.

Although not required by the capacity analysis, a traffic signal may ultimately be implemented at this location for reasons other than capacity. As such, traffic signal warrants were conducted at the project access for the near term cumulative condition. The intersection of SR-76/Project Access meets the following warrants (warrants available in Appendix J).

Minimum Vehicular (80%)
Interruption of Continuous Traffic (100%)
Combination (80%)
AM Peak Hour (100%)
PM Peak Hour (100%)

INTERNAL CIRCULATION

The applicant proposes to construct a bridge over the San Luis Rey River and to provide a two lane road for access to/from the landfill and to/from the topsoil stockpile/borrow areas. D&A reviewed the proposed internal circulation plan and found them to be adequate for the purposes of the landfill without creating unnecessary conflicting movements and supplying adequate turning radii for large vehicles.

OFF-SITE CIRCULATION

The project now includes the purchase and delivery of recycled water from the Olivenhain Municipal Water District (Olivenhain). Olivenhain has executed a contract with the project applicant to provide all water necessary for project construction and operation. This recycled water would be delivered to project recycled water trucks at Olivenhain's Santa Fe Valley Reservoir and Pump Station site (the "Reservoir Site") located near the intersection of Artesian Road and Maranatha Drive west of I-15. The recycled water would be delivered to water trucks at this location and then trucked to the landfill site using I-15 and SR 76 east of the project site. A regional location map showing the location of Olivenhain's recycled water site is provided on Figure 19 and Figure 19A is an aerial of the Reservoir Site.

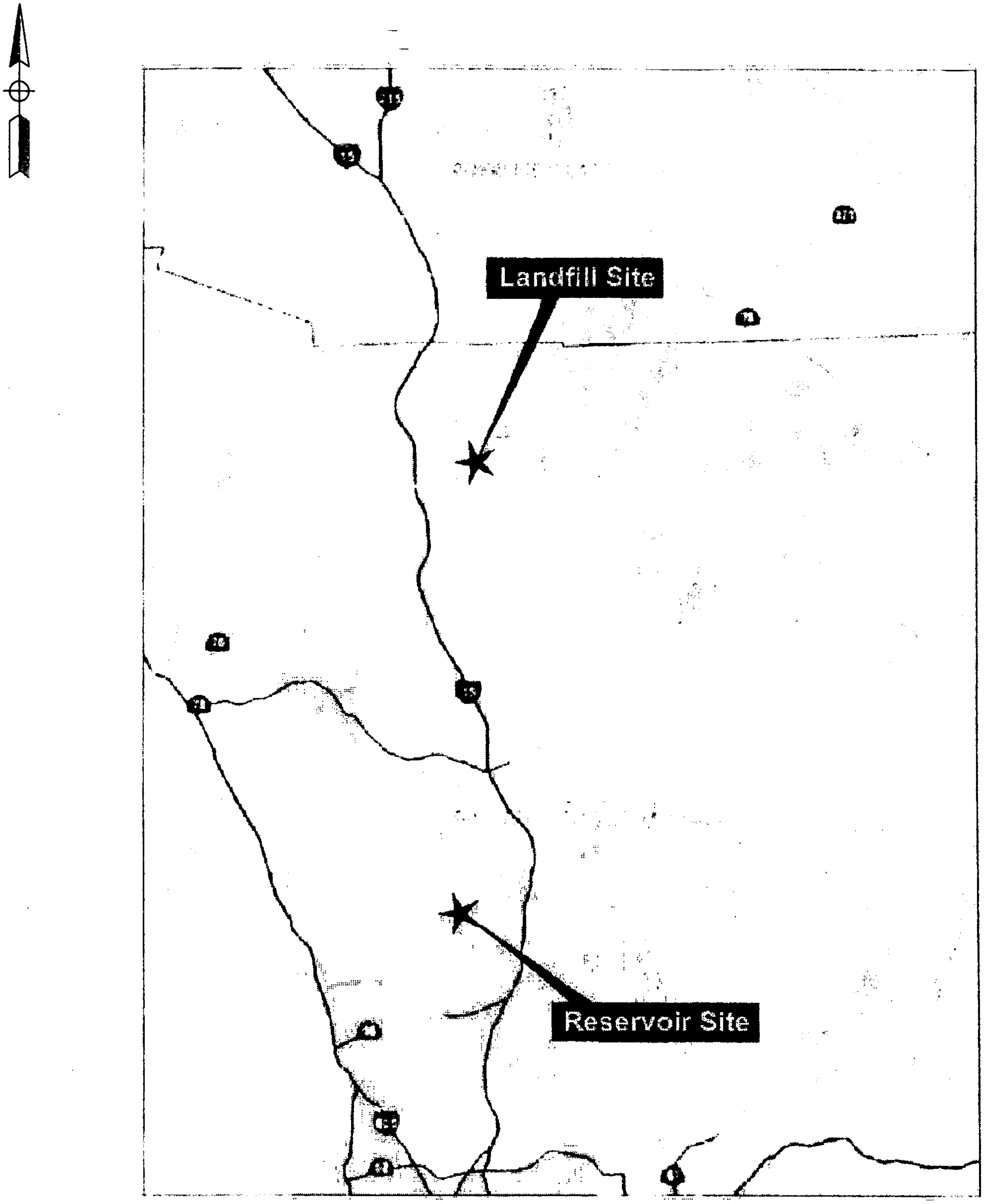

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FIGURE 19

REGIONAL LOCATION MAP

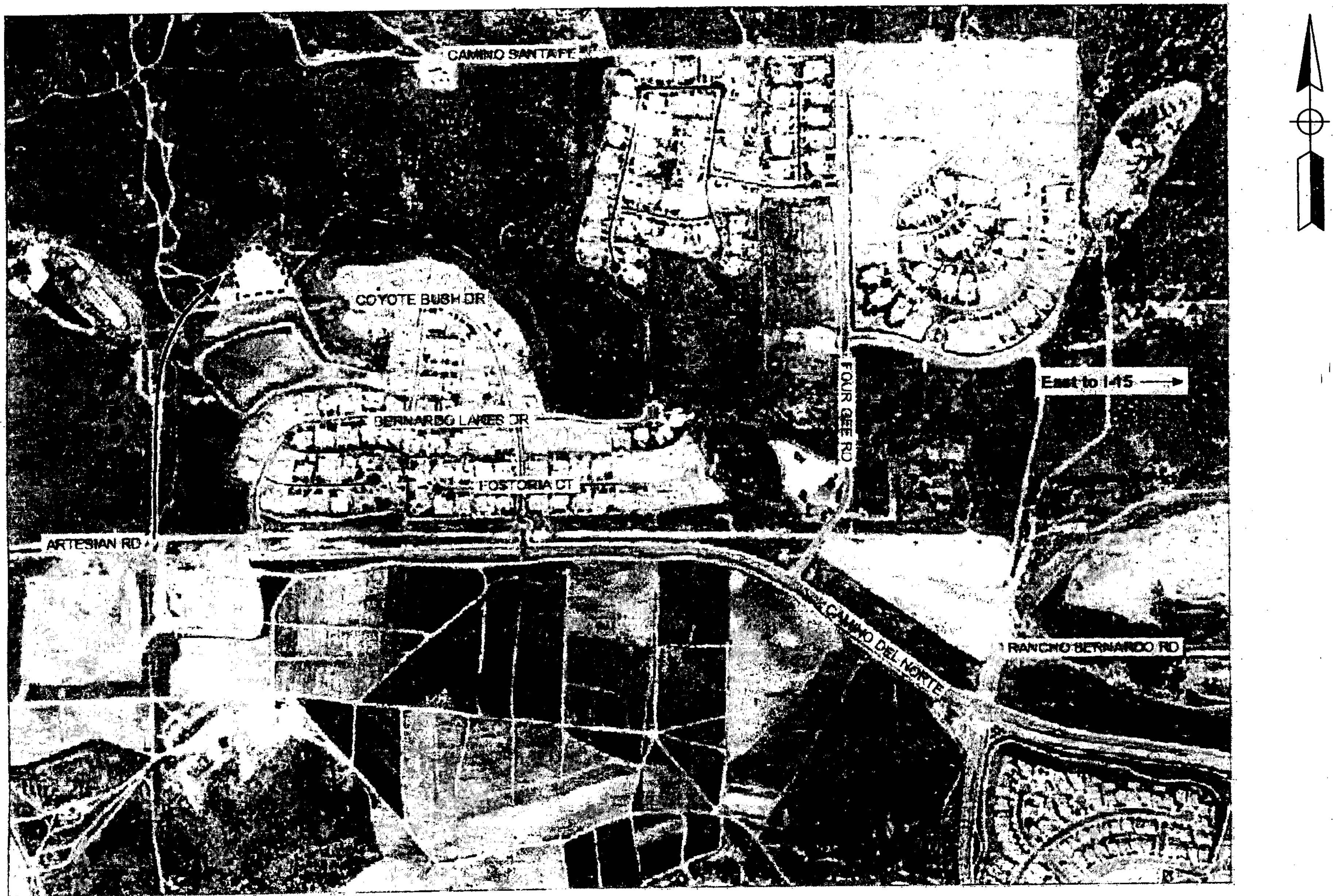

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FIGURE 19A

AERIAL OF RESERVOIR SITE

Sources of water available to the project include groundwater on the project site outside the Pala Basin derived from percolating groundwater through fractured bedrock and recycled water purchased and delivered by Olivenhain. The maximum expected daily project demand for water is 205,000 gallons per day during peak periods that need water for both construction and operation of the project. On-site wells derived from percolating groundwater have the ability to supply approximately 38,880 gallons per day of this demand. However, in order to assess project traffic on Maranatha Drive based upon worst-case conditions, it has been assumed that all 205,000 gallons per day of water needed for the project is purchased and delivered as recycled water from Olivenhain with these truck trips utilizing Maranatha Drive for pickup and delivery.

Recycled water trips for the project will utilize I-15 to Camino del Norte which transitions to Camino del Sur and then turn right on Maranatha Drive to access Olivenhain's delivery site. Camino del Norte is a six-lane divided road from Bernardo Center Drive to Dove Canyon, and four-lanes divided from Dove Canyon to Rancho Bernardo Road. West of Rancho Bernardo Road, Camino del Sur operates as a two-lane roadway with left turn pockets at intersections to Bernardo Lakes. East of Bernardo Lakes, Maranatha Drive travels north of Camino del Sur. Portions of Camino del Norte are within the City of San Diego jurisdiction and portions are within the County of San Diego jurisdiction. Camino del Sur is completely within the City of San Diego. The north end of Maranatha Drive is within the County while the southern end is within the City.

Currently, Camino del Sur and Camino del Norte is under construction to build these facilities to their ultimate classifications. Camino del Sur is being constructed to 4-lane major standards and Camino del Norte is being improved to six-lane prime arterial standards. Additionally, Caltrans is currently implementing improvements to the I-15 corridor and interchange ramps at Camino del Norte as part of the I-15 Managed Lanes project, scheduled for completion in 2008 to add auxiliary lanes.

In order to assure that drivers will utilize this route, we recommend the project implement a project design feature that drivers use only the following roads: Maranatha Drive, Camino del Norte between Maranatha Drive and I-15, I-15 between Camino del Norte and SR-76, and SR-76 east of I-15 and the landfill access road.

MARANATHA SCHOOL

The Reservoir Site is located on the east side of Maranatha Drive. A new school is currently operating on the west side of Maranatha Drive known as the Maranatha School. A major use permit for this school was approved by the County of San Diego on February 11, 2004. The major use permit permits a Christian school and church consisting of classroom buildings, a chapel, and various buildings on a 22.5 acre site located on the west side of Maranatha Drive. The major use permit permits a maximum of 2000 students for grades kindergarten through high school. Phase 1 of the school will accommodate 900 students for grades kindergarten through high school. Phase 2 build out projected in the year 2020 permits an additional 1100 students for a total of 2000 students.

Conditions of approval imposed by the County of San Diego on the Maranatha School project require the dedication of Maranatha Drive as a public road with a right-of-way width of 60' plus slope rights and drainage easements. The conditions of approval for the Maranatha School project also require the widening and paving of Maranatha Drive to 40' of paved width and 60' of graded width.

Based on peak daily project water demand of 205,000 gallons per day loaded on 2300-gallon trucks results in 89 worst-case recycled trucks utilizing Maranatha Drive on a daily basis. Utilizing the PCE factor of 1.5 and 2-way trips results in approximately 267 daily trucks utilizing Maranatha Drive for the delivery of recycled water assuming that all water provided to the project is recycled water. To avoid any potential safety impacts to students, parents, or teachers at the Maranatha school, it is recommended that recycled water trips using Maranatha Drive will be prohibited during the period from when school opens from 6:45 to 8:15 AM and at the end of the school day from 2:30 PM to 4:45 PM. During the remaining 7.5 hours of project operations, hourly truck traffic would be approximately 12 trucks per hour. With 2-way trips and PCE conversion factor of 1.5, this equates to approximately 36 PCE trips per hour. An additional 20 2-way trips are expected per day for personnel of Olivenhain and the Rancho Santa Fe CSD to access and utilize their respective facilities adjacent to Maranatha Drive. This results in total maximum daily traffic demand on Maranatha Drive of 4717 daily trips (4430 trips for the Maranatha school project + 267 peak daily trips for pickup and delivery of recycled water + 20 additional daily trips for public agency personnel).

As noted previously, the conditions of approval on the Maranatha school and church project require the widening of Maranatha Drive to 40' of paved surface on 60' of graded width. It is presently anticipated that these road improvements will be completed within the next 6 months. Based on the County's roadway capacity thresholds, a 40' paved roadway on 60' of graded width is capable of accommodating a maximum LOS D threshold of 10,900 daily vehicles. Maximum daily trips on Maranatha Drive for the Maranatha school project, recycled water trips for the project and public agency personnel is 4717 daily trips. This equates to LOS C traffic flow conditions on Maranatha Drive under worst-case expected traffic conditions at build out of the Maranatha School project. With the improvements required on Maranatha Drive for the Maranatha school and church project, Maranatha Drive is able to accommodate peak traffic demand expected and will maintain adequate service levels under County standards. The addition of recycled water trucks for the project does not create a deficit condition and no additional roadway improvements or widening is required on Maranatha Drive.

CITY OF SAN DIEGO ANALYSIS SCOPE

The City of San Diego requires traffic analyses of all intersections within the City's jurisdiction where the project contributes 50 or more peak hour trips in any direction. The recycled water trucks generate a maximum of 36 peak hour passenger car equivalent (PCE) trips (two-way), or 18 PCE trips in any one direction through intersections. As such, analysis of off-site intersections is not required by the City of San Diego as the recycled water trucks do not meet City thresholds.

For roadway segments, the City of San Diego identifies project impacts where the project increases the daily traffic analysis volume to capacity (v/c) ratio by more than 2% on segments which demonstrate LOS E or worse conditions.

EXISTING AND BUILDOUT CONDITIONS

For the purposes of identifying levels of service and traffic densities in the project vicinity, the Maranatha School and Church Traffic Impact Study (July 6, 2001) prepared by Katz, Okitsu & Associates was utilized. Excerpts from this study are included in Appendix J. As stated previously, Camino del Norte, Camino del Sur, Interstate 15 and interchange ramps are currently under construction for ultimate general plan classifications.

To determine existing conditions, the near term conditions including traffic from Phase I of the Maranatha School development described in the 2001 Katz, Okitsu study were utilized. Both Camino del Norte and all intersections, including the intersections of Camino del Norte and I-15, operate at an acceptable conditions of LOS D or better. However, I-15 between Pomerado Road and Carmel Mountain Road operate at unacceptable conditions of LOS F(0) and F(1).

To evaluate impacts from the project, the analysis focused on the 2020 buildout with and without project condition to demonstrate worst case traffic volumes with the addition of the proposed project's recycled water trips.

Roadway Segments

Future 2020 buildout with and without project roadway segment traffic densities were obtained from the Katz, Okitsu study. Table 29 summarizes the daily roadway capacity analysis. As shown on Table 29, all roadway segments operate at LOS C or better with or without the project. The project does not meet significance criteria for City or County jurisdictions and is considered to be an insignificant portion of future traffic volumes.

Table 29 - Water Route Buildout Roadway Segment Level of Service Summary

Roadway Segment	Class	Maximum Capacity	Buildout			Buildout Plus Project					
			ADT	LOS	V/C	Proj Traffic	ADT	LOS	V/C	V/C Incr.	Signif?
Camino del Norte:											
I-15 SB/Bernardo Center [1]	6-Prime	60000	48300	C	0.805	267	48567	C	0.809	0.004	No
Bernard Ctr/Cam San Bernardo [1]	6-Prime	60000	44000	C	0.733	267	44267	C	0.738	0.004	No
Cam San Bernardo/Dove Cyn [2]	6-Prime	57000	25400	B	0.446	267	25667	B	0.450	0.005	No
Dove Canyon/4S Parkway [2]	6-Prime	57000	28700	B	0.504	267	28967	B	0.508	0.005	No
4S Pkwy/Rancho Bernardo Rd [2]	4-Major	37000	25800	C	0.697	267	26067	C	0.705	0.007	No
Camino del Sur:											
Rancho Bernardo/Four Gee [1]	4-Major	40000	25600	C	0.640	267	25867	C	0.647	0.007	No
Four Gee/Maranatha [1]	4-Major	40000	22800	C	0.570	267	23067	C	0.577	0.007	No
Maranatha/West Loop Road [1]	4-Major	40000	8300	A	0.208	0	8300	A	0.208	0.000	No
Maranatha Drive:											
North of Camino del Norte [2]	2-Collector	16200	4450	C	0.275	267	4717	C	0.291	0.016	No

ADT=Average daily traffic; LOS=level of service; V/C=volume to capacity ratio
V/C Incr. = increase to volume to capacity ratio due to project
[1]=City of San Diego jurisdiction; [2]=County of San Diego jurisdiction
Maximum Capacity per County of San Diego Public Road Standards or City of San Diego where applicable
Signif?=significance yes or no, based on City or County standards where applicable

Intersection Operation

Intersection operation for the 2020 buildout with and without project condition was obtained from the Katz, Okitsu study (Table 11, Summary of Buildout Intersection Performance, copy attached). As identified in the approved study, all intersections along the water truck route operate at LOS D or better at buildout. The project does not meet minimum City or County thresholds for impacts (less than 50 trips in a single direction for the City and less than 20 critical movement trips within the County).

Therefore, the project is considered to be an insignificant portion of the buildout traffic volumes at intersections along the water facility truck route.

Freeway Segments

A freeway segment analysis was conducted for I-15 from Pomerado Road to Carmel Mountain Road. Table 30 summarizes the results of the freeway analysis using the Caltrans Volume to Capacity ratios. As shown on Table 30, freeway segments are anticipated to fail in the 8 lane configuration; however, the project is an insignificant portion of the future volumes and is not considered to have a significant impact on the mainline freeway. However, since the project incrementally adds traffic to this unacceptable level of service, it is treated as a significant impact for purposes of this traffic study.

Table 30 - Buildout Freeway Segment Level of Service

Interstate 15 Segment Limits	# Lanes	Peak Capac	Peak Hr. %	Dir. Split	Truck Factor	Buildout (no project) ADT	V/C	LOS	Buildout (with project) ADT	V/C	LOS	Incr. V/C	Sign?
Pomerado Rd/Rancho Bernardo	4	9200	8.70%	58%	9.20%	252100	1.510	F(3)	253705	1.520	F(3)	0.010	No
Rancho Bernardo/Bernardo Ctr	4	9200	8.80%	59%	9.20%	248500	1.531	F(3)	250105	1.541	F(3)	0.010	No
Bernardo Ctr/Camino del Norte	4	9200	8.80%	59%	9.20%	246000	1.516	F(3)	247605	1.526	F(3)	0.010	No
Camino del Norte/Carmel Mtn	4	9200	8.80%	61%	9.20%	249200	1.588	F(3)	250805	1.598	F(3)	0.010	No

Lanes = Number of lanes in one direction; Peak Capac = peak capacity in one direction

Peak Hr % = peak hour percentage per ratio of peak hour versus average daily traffic (per Caltrans Traffic Volumes)

Dir. Split = directional split percentage of peak hour traffic traveling in peak direction; Truck Factor = influence of heavy vehicles

ADT = average daily traffic; V/C = volume to capacity ratio per Caltrans District 11 methodology; LOS = Level of service A to F, including F(0) to F(3)

Sign? = significance? Yes or no; per City of San Diego thresholds

Calculation formula = ((ADT*PH%*Dir. Split)+Truck Factor) / Peak Capacity

SECTION VI - TRAFFIC DESIGN FEATURES & MITIGATION MEASURES

TRAFFIC DESIGN FEATURES

The following traffic design features are recommended as part of the project to minimize traffic impacts:

- SR 76 will be improved at the access road as shown on Exhibit 3-6 of the FEIR to provide adequate width for the eastbound deceleration lane and a westbound turn lane to improve sight distance per Caltrans requirements. The improvements, which are approximately 1700 linear feet, will realign SR 76 to the south of the existing alignment and will widen the roadway to 52 to 64 feet.

- The installation of a traffic signal at the intersection of SR 76 and the landfill access subject to the approval of Caltrans.

- Recycled water trucks will be prohibited from using Maranatha Drive from 7:30 to 8:30 a.m. and from 2:00 to 3:00 p.m. daily while the Maranatha school is in session.

- If not installed to the satisfaction of the County, City and/or School District by the Maranatha School project, non-regulatory signage will be posted on Maranatha Drive cautioning drivers about the school activities and the presence of children.

- In order to assure that drivers utilize Maranatha Drive, Camino del Norte between Maranatha Drive and I-15, I-15 between Camino del Norte and SR-76 and SR-76 east of I-15 and the landfill access road, the project will include in any trucking contract the requirement that the drivers utilize these routes.

TRAFFIC MITIGATION MEASURES

A number of traffic mitigation measures have been adopted or are recommended to minimize traffic impacts associated with the project. These mitigation measures are identified below:

- Project traffic could worsen sections of poor surface along SR 76 from Interstate 15 to the project access. To mitigate this impact to a level of insignificance the project applicant will conduct a structural analysis of SR 76 and determine the structural requirements along SR 76 from the Rosemary Mountain Palomar Aggregates project to the proposed landfill entrance to determine whether the existing foundation can accommodate anticipated heavy truckloads. The applicant shall obtain certification from Caltrans for adequate pavement surface to be enforced by the County Department of Public Works. This analysis shall be extended west of the I-15 ramps if the Palomar Aggregate project is not implemented. Construction of the recommended pavement improvements, consistent with Caltrans requirements shall be implemented prior to operation of the landfill, if determined necessary, and fair share contribution made by the applicant.

- If total project traffic exceeds 2,085 PCE trips per day or 675 total trucks from all sources, segments of SR 76 east of I-15 will be adversely impacted by the proposed project and exceed the acceptable LOS D criteria. To ensure the project traffic does not adversely impact the LOS D condition on SR 76 east of I-15, total project traffic from all sources on any day shall not exceed 2,085 PCE trips or a maximum of 675 trucks from all sources. When the project equals 2,085 PCE trips or 675 trucks in any day, the project shall be shut down for the balance of the day.

- With the addition of project peak hour traffic between the hours of 2:00 p.m. and 5:00 p.m., SR-76 east of I-15 will be adversely impacted by the proposed project and exceed the acceptable LOS D criteria. To achieve an acceptable LOS D condition on SR-76 east of I-15 during the project's peak afternoon hours from 2:00 p.m. to 5:00 p.m., project traffic shall be limited to a total of 215 PCE trips or 72 trucks between the hours of 2:00 p.m. and 3:00 p.m., a total of 111 PCE trips or 37 trucks between the hours of 3:00 p.m. and 4:00 p.m., and a total of 111 PCE trips or 37 trucks between the hours of 4:00 p.m. and 5:00 p.m. daily. Once the project has reached these maximum allowable trips or trucks in any of these peak hours or meets the maximum tonnage, project operation shall close down for the balance of the peak hour affected.

- In order to ensure project compliance with the daily limits on traffic and the peak trips permitted between the hours of 2:00 p.m. and 5:00 p.m., the landfill shall implement the following measures upon commencement of operations:

(1) Once 95% of the maximum daily traffic limit is reached, the landfill operator shall immediately notify commercial waste haulers to curtail waste deliveries as needed to assure compliance with the maximum daily traffic limits. Notwithstanding the above, the landfill operator may not refuse acceptance of any waste collection vehicle that was traveling on SR 76 east of I-15 at the time notice was given.

(2) Each contract for waste delivery at the landfill shall notify the customer of the peak hour traffic restrictions, shall require that the customer cooperate in good faith in scheduling deliveries to adhere to peak hour restrictions, and shall implement a notification system whereby the customer would be directed to use alternative disposal facilities as needed to assure compliance with the peak hour traffic restrictions.

(3) Compliance with peak hour traffic restrictions shall be monitored on the inbound lane of the landfill access road at a location as near as feasible to SR 76. Vehicle trips will be counted manually or, if feasible, electronically, and where appropriate converted into PCE. If electronic measurement methods are incorporated, and if feasible, electronic traffic counts shall be made available to the Department of Environmental Health at its offices on a real-time basis. The landfill operator shall report traffic count information to the Department of Environmental Health weekly in writing.

(4) Once 75% of the peak hourly restriction is reached, the landfill operator shall immediately notify commercial waste haulers to curtail waste deliveries, pursuant to the contract arrangements described above, as needed to assure compliance with the peak hour traffic restrictions. Notwithstanding the above, the landfill operator may not refuse acceptance of any waste collection vehicle that was traveling on SR 76 east of I-15 at the time notice was given

- SR 76 west of I-15 currently operates in an unacceptable LOS E condition with and without project traffic. At the commencement of operation, the project applicant shall pay the County's Transportation Impact Fee to fund its fair share of improvements on the segment of SR 76 west of I-15.

- I-15 between Pomerado Road and Carmel Mountain Road currently operates in an unacceptable LOS F(0) or F(1) condition with and without project traffic. At the commencement of operation, the project applicant shall pay the County's Transportation Impact Fee to fund its fair share of improvements on this segment.

- For the existing plus other development plus project scenario, the I-15/SR 76 northbound ramp will be adversely impacted by the proposed project and exceed the acceptable LOS D criteria. At the commencement of operation, the project applicant shall make a fair-share contribution for the addition of a eastbound left turn lane and westbound thru lane on the I-15 over crossing.

- The project contributes to cumulative impacts on SR-76 that will cause SR-76 to operate below the acceptable LOS D standard or contribute incrementally to an unacceptable condition with or without project traffic. At the commencement of operation, the project applicant shall pay the County's Transportation Impact Fee (TIF) to fund its fair share of cumulative impacts to SR-76 and the intersections.

- The project contributes to cumulative impacts on I-15 between Pomerado Road and Carmel Mountain Road and will contribute incrementally to a predicted LOS F(3) condition with or without project traffic. At the commencement of operation, the project applicant shall pay the County's Transportation Impact Fee (TIF) to fund its fair share of cumulative impacts to SR-76 and the intersections.

- The project shall make an irrevocable offer of dedication for right-of-way to 108 feet in width within the Project boundary for the widening of SR-76 to four lanes by the County of San Diego Circulation Element, including a designated bike route.

- The project shall ensure that the structural integrity of Maranatha Drive is sufficient to accommodate the trucks associated with transportation of recycled water to the landfill site. The project shall conduct a structural integrity test on the Maranatha Drive pavement to determine ultimate load bearing of the roadway. If necessary, the project shall provide the required pavement overlay to support the heavy vehicle loads that would occur on Maranatha Drive. Any necessary repaving or construction along Maranatha Drive shall be done outside of the operation of the school (i.e., weekends or school breaks) so as to not disrupt school activities.

CUMULATIVE IMPACTS

The project will participate in the County's TIF program to fully mitigate all cumulative and future impacts to roadway segments and intersections based on current County fees.

SECTION VII - SUMMARY OF FINDINGS & CONCLUSIONS

- The proposed Gregory Canyon landfill is located approximately 3.5 miles east of Interstate 15 on State Route 76. The Gregory Canyon site is planned to contain approximately 30 million tons of refuse with an operating life of about 30 years. Maximum trip generation for this site was estimated at 2,085 daily trips, which includes truck traffic converted into passenger car equivalents (PCEs).

- The project access will provide for acceleration/deceleration lanes and adequate shoulders along SR-76 for approximately 1,700 feet. This improvement will also assure a minimum sight distance of 1,000 feet in both directions. Vegetation or structures will not obstruct this minimum sight distance.

- An update of Accident Data was conducted and showed that while the traffic volumes have increased significantly on SR-76, accident rates per million vehicle miles are consistent with previous studies. Based on the comparison of primary collision factors, the data continues to show that alcohol, driver violations, and excessive speed are the major causes of accidents on SR-76. The data does not show an increase in volumes or trucks is related to the accident rate which is consistent with previous conclusions.

- Existing conditions traffic analyses determined that all study intersections operate acceptably with traffic signals. No deficiencies at intersections were reported.

- A peak hour analysis of SR-76 was conducted in accordance with Congestion Management Program (CMP) Guidelines throughout the operation of the facility from 7:00am to 6:00pm. The peak hour analysis demonstrated LOS D conditions along SR-76 from I-15 to the project site within this time frame. With the addition of project peak hour traffic determined that the project has a direct impact on SR-76 between the hours of 2pm-5pm. As mitigation for this impact, it is recommended that the project reduce its peak hour truck traffic within the hours of 2pm-5pm. This mitigation is easily monitored by the facility as it records all traffic and tonnage throughout the day.

- Other known projects which significantly affect this corridor were identified and incorporated into the near term analysis where appropriate. Impacts at intersections due to other project traffic were identified at the SR-76/Interstate 15 Northbound Ramp. This is the result of cumulative project contributions and requires near term improvements with or without the proposed project. The project is considered to have a cumulative impact on this intersection and will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate all cumulative and future circulation needs.

- State Route 76 west of I-15 is deficient during peak hours with or without project traffic. The project will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate circulation needs along State Route 76.

- State Route 76 continues to report deficiencies with the addition of cumulative projects and the proposed project. The project will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate all cumulative and future circulation needs along State Route 76.

- A year 2030 traffic projection was conducted using the County of San Diego's General Plan 2020 Model, Board Alternative Map, Existing Plus CIP Network, for generating traffic volumes. Analysis was conducted for a "no build" (or existing) condition. Year 2030 "no build" analyses report failing level of service on SR-76 and its intersections from Highway 395 to I-15, as well as signalized intersections at the I-15 ramps and Old Highway 395. The project will participate in the County's Traffic Impact Fee (TIF) program to fully mitigate all cumulative and future circulation needs.

- Recycled water trucks accessing the Olivenhain Water District facility are able to be accommodated on Maranatha Drive. It is recommended the project install non-regulatory cautionary signs to warn of school activities and the presence of children if not adequately supplied by the Maranatha School.

- Recycled water trucks do not have a significant impact on Maranatha Drive, Camino del Norte/Camino del Sur and I-15 between Pomerado Road and Carmel Mountain Road. However, this I-15 segment continues to report deficiencies with the addition of cumulative projects with or without project traffic.

APPENDIX A
Traffic Counts
Vertical Grade Profile
Speed Surveys
Accident Reports

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: US-395 DATE: 3/3/2005 LOCATION: City of Fallbrook

E-W STREET: Pala Rd. DAY: THURSDAY PROJECT# 05-3059-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	1	0	1	2	0	1	2	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	18	27	14	73	14	10	7	134	16	15	100	30	458
7:15 AM	27	39	21	87	16	9	9	142	20	12	114	26	522
7:30 AM	18	22	13	64	32	18	10	150	5	19	133	28	512
7:45 AM	9	23	9	57	21	8	12	133	8	11	137	29	457
8:00 AM	15	28	5	54	18	7	15	113	13	2	122	20	412
8:15 AM	15	16	3	65	22	11	13	135	9	15	144	19	467
8:30 AM	19	20	8	49	23	20	8	103	8	6	145	26	435
8:45 AM	9	18	4	42	27	11	14	159	17	5	124	23	453
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	130	193	77	491	173	94	88	1069	96	85	1019	201	3716

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	72	111	57	281	83	45	38	559	49	57	484	113	1949
PEAK HR. FACTOR:		0.690			0.897			0.944			0.908		0.933

CONTROL: signalized

A1

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: US-395 DATE: 3/3/2005 LOCATION: City of Fallbrook

E-W STREET: Pala Rd. DAY: THURSDAY PROJECT# 05-3059-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	1	0	1	2	0	1	2	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	9	26	6	45	14	15	10	172	10	5	184	53	549
4:15 PM	8	24	4	54	19	17	21	172	12	15	148	68	562
4:30 PM	15	24	6	58	18	13	21	174	14	8	166	77	594
4:45 PM	11	23	6	39	15	11	17	162	12	7	160	69	532
5:00 PM	15	30	10	69	14	19	13	159	10	6	168	49	562
5:15 PM	15	25	6	62	14	11	9	158	5	7	172	76	560
5:30 PM	12	25	8	44	15	11	17	151	15	11	175	59	543
5:45 PM	13	21	9	48	18	17	16	129	16	6	143	41	477
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES =	98	198	55	419	127	114	124	1277	94	65	1316	492	4379

PM Peak Hr Begins at: 415 PM

PEAK VOLUMES =	49	101	26	220	66	60	72	667	48	36	642	263	2250
PEAK HR. FACTOR:		0.800			0.848			0.941			0.937		0.947

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: I-15 SB Ramps | DATE: 3/3/2005 | LOCATION: City of Fallbrook

E-W STREET: Pala Rd. | DAY: THURSDAY | PROJECT# 05-3059-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	.5	.5	1	0	1	1	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM				39		116		115	99	19	68		456
7:15 AM				33		97		119	87	32	73		441
7:30 AM				50		117		145	87	24	76		499
7:45 AM				33		87		115	92	29	61		417
8:00 AM				31		68		122	98	19	58		396
8:15 AM				38		79		91	82	26	69		385
8:30 AM				37		76		116	86	19	64		398
8:45 AM				36		86		95	77	18	67		379
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	297	0	726	0	918	708	186	536	0	3371

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	0	0	0	155	0	417	0	494	365	104	278	0	1813
PEAK HR. FACTOR:		0.000			0.856			0.926			0.910		0.908

CONTROL: signalized

A3

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: I-15 SB Ramps DATE: 3/3/2005 LOCATION: City of Fallbrook

E-W STREET: Pala Rd. DAY: THURSDAY PROJECT# 05-3059-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	.5	.5	1	0	1	1	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM				48		89		172	69	59	163		600
4:15 PM				56		86		181	76	30	140		569
4:30 PM				45		101		141	54	32	139		512
4:45 PM				43		77		153	51	31	165		520
5:00 PM				50		102		181	62	33	146		574
5:15 PM				32		87		144	56	28	157		504
5:30 PM				32		72		161	65	29	113		472
5:45 PM				40		73		161	44	23	178		519
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	346	0	687	0	1294	477	265	1201	0	4270

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	0	0	0	192	0	353	0	647	250	152	607	0	2201
PEAK HR. FACTOR:		0.000			0.933			0.873			0.855		0.917

CONTROL: signalized

A4

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: I-15 NB Ramps | DATE: 3/2/2005 | LOCATION: City of Fallbrook

E-W STREET: Pala Rd. | DAY: WEDNESDAY | PROJECT# 05-3059-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	.5	.5	1	0	0	0	1	1	0	0	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	45		12				94	46			40	11	248
7:15 AM	50		28				102	60			48	16	304
7:30 AM	42		23				88	72			44	15	284
7:45 AM	59		23				103	70			49	20	324
8:00 AM	68		38				70	47			32	12	267
8:15 AM	48		34				97	53			32	20	284
8:30 AM	43		33				83	58			47	12	276
8:45 AM	48		25				99	69			32	10	283
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	403	0	216	0	0	0	736	475	0	0	324	116	2270

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	219	0	112	0	0	0	363	249	0	0	173	63	1179
PEAK HR. FACTOR:		0.781			0.000			0.884			0.855		0.910

CONTROL: signalized

A5

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: I-15 NB Ramps | DATE: 3/2/2005 | LOCATION: City of Fallbrook

E-W STREET: Pala Rd. | DAY: WEDNESDAY | PROJECT# 05-3059-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	.5	.5	1	0	0	0	1	1	0	0	1	1	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	102		54				188	97			136	41	618
4:15 PM	130		34				130	60			107	38	499
4:30 PM	109		34				116	60			100	34	453
4:45 PM	98		43				144	74			119	30	508
5:00 PM	124		42				126	55			96	25	468
5:15 PM	138		49				121	67			70	30	475
5:30 PM	125		49				122	62			88	18	464
5:45 PM	106		39				123	73			61	16	418
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	932	0	344	0	0	0	1070	548	0	0	777	232	3903

PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	439	0	165	0	0	0	578	291	0	0	462	143	2078
PEAK HR. FACTOR:		0.921			0.000			0.762			0.855		0.841

CONTROL: signalized

Volumes for: Thursday, February 24, 2005 City: pala Project #: 05-3060-001

Location: Pala Rd btwn Old Hwy 395 & I-15

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			26		63			12:00			164		172		
00:15			21		47			12:15			155		172		
00:30			19		36			12:30			151		151		
00:45			26	92	40	186	278	12:45			157	627	177	672	1299
01:00			20		29			13:00			168		184		
01:15			23		20			13:15			154		173		
01:30			20		27			13:30			153		180		
01:45			20	83	33	109	192	13:45			194	669	195	732	1401
02:00			18		25			14:00			167		212		
02:15			14		17			14:15			186		207		
02:30			14		28			14:30			198		212		
02:45			6	52	27	97	149	14:45			201	752	188	819	1571
03:00			14		16			15:00			214		205		
03:15			15		24			15:15			196		233		
03:30			14		24			15:30			227		232		
03:45			12	55	37	101	156	15:45			230	867	233	903	1770
04:00			11		24			16:00			206		272		
04:15			24		47			16:15			220		226		
04:30			38		62			16:30			250		242		
04:45			39	112	74	207	319	16:45			189	865	255	995	1860
05:00			49		97			17:00			214		242		
05:15			69		120			17:15			234		228		
05:30			92		146			17:30			178		240		
05:45			127	337	167	530	867	17:45			214	840	200	910	1750
06:00			114		171			18:00			183		248		
06:15			161		184			18:15			180		195		
06:30			201		188			18:30			155		189		
06:45			176	652	192	735	1387	18:45			163	681	153	785	1466
07:00			170		212			19:00			131		138		
07:15			217		210			/19:15			102		112		
07:30			217		180			19:30			109		91		
07:45			198	802	200	802	1604	19:45			105	447	101	442	889
08:00			239		185			20:00			103		119		
08:15			165		190			20:15			73		103		
08:30			202		165			20:30			86		89		
08:45			165	771	194	734	1505	20:45			81	343	70	381	724
09:00			202		175			21:00			74		82		
09:15			162		165			21:15			69		74		
09:30			172		162			21:30			93		82		
09:45			190	726	179	681	1407	21:45			65	301	70	308	609
10:00			183		178			22:00			69		69		
10:15			195		156			22:15			59		56		
10:30			179		162			22:30			66		57		
10:45			162	719	149	645	1364	22:45			55	249	63	245	494
11:00			185		142			23:00			32		50		
11:15			154		184			23:15			35		51		
11:30			169		154			23:30			39		44		
11:45			179	687	141	621	1308	23:45			25	131	44	189	320
Total Vol.				5088		5448	**10536**					6772		7381	**14153**

Daily Totals

NB	SB	EB	WB	Combined
		11860	12829	24689

	AM			PM		
Split %	48.3%	51.7%	42.7%	47.8%	52.2%	57.3%
Peak Hour	07:15	06:30	07:15	15:45	16:00	15:45
Volume	871	802	1646	906	995	1879
P.H.F.	0.91	0.95	0.96	0.91	0.91	0.95

A7

Volumes for: Thursday, February 24, 2005 City: pala Project #: 05-3060-002

Location: Pala Rd btwn Pankey Rd & I-15

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			9		67			12:00			108		77		
00:15			9		65			12:15			112		84		
00:30			15		30			12:30			100		100		
00:45			19	52	32	194	246	12:45			117	437	98	359	796
01:00			19		28			13:00			104		82		
01:15			16		22			13:15			103		77		
01:30			12		24			13:30			106		102		
01:45			13	60	20	94	154	13:45			119	432	92	353	785
02:00			14		23			14:00			129		106		
02:15			12		16			14:15			138		107		
02:30			13		28			14:30			137		124		
02:45			19	58	22	89	147	14:45			141	545	102	439	984
03:00			17		16			15:00			136		104		
03:15			15		22			15:15			135		130		
03:30			15		14			15:30			131		136		
03:45			11	58	20	72	130	15:45			140	542	134	504	1046
04:00			15		14			16:00			128		156		
04:15			1		16			16:15			108		135		
04:30			10		14			16:30			117		148		
04:45			8	34	26	70	104	16:45			121	474	126	565	1039
05:00			13		22			17:00			111		153		
05:15			19		27			17:15			117		123		
05:30			27		34			17:30			87		107		
05:45			36	95	42	125	220	17:45			93	408	100	483	891
06:00			43		44			18:00			91		95		
06:15			42		55			18:15			105		94		
06:30			51		56			18:30			100		94		
06:45			65	201	78	233	434	18:45			88	384	74	357	741
07:00			74		68			19:00			73		76		
07:15			78		72			19:15			71		72		
07:30			83		84			19:30			60		67		
07:45			83	318	66	290	608	19:45			57	261	50	265	526
08:00			91		82			20:00			53		69		
08:15			89		72			20:15			50		41		
08:30			91		71			20:30			46		58		
08:45			86	357	69	294	651	20:45			47	196	48	216	412
09:00			93		86			21:00			50		50		
09:15			99		70			21:15			53		48		
09:30			87		78			21:30			47		54		
09:45			86	365	80	314	679	21:45			45	195	56	208	403
10:00			97		86			22:00			41		48		
10:15			108		88			22:15			39		38		
10:30			104		78			22:30			40		50		
10:45			114	423	72	324	747	22:45			37	157	46	182	339
11:00			77		60			23:00			33		36		
11:15			97		72			23:15			27		41		
11:30			72		71			23:30			29		50		
11:45			97	343	68	271	614	23:45			31	120	34	161	281
Total Vol.				2364		2370	4734					4151		4092	8243

Daily Totals

NB	SB	EB	WB	Combined
		6515	6462	12977

	AM			PM		
	EB	WB	Combined	EB	WB	Combined
Split %	49.9%	50.1%	36.5%	50.4%	49.6%	63.5%
Peak Hour	10:00	09:30	10:00	14:15	15:45	15:15
Volume	423	332	747	552	573	1090
P.H.F.	0.93	0.94	0.95	0.98	0.92	0.96

A8

Volumes for: Thursday, February 24, 2005 City: pala Project #: 05-3060-007

Location: Pala Rd btwn Rice Canyon and Pankey Rd

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			11		50			12:00			135		65		
00:15			9		67			12:15			110		76		
00:30			16		24			12:30			109		128		
00:45			20	56	59	200	256	12:45			133	487	118	387	874
01:00			18		44			13:00			123		106		
01:15			18		20			13:15			123		64		
01:30			14		36			13:30			114		112		
01:45			13	63	23	123	186	13:45			133	493	134	416	909
02:00			15		31			14:00			154		95		
02:15			15		25			14:15			128		109		
02:30			15		27			14:30			141		182		
02:45			22	67	26	109	176	14:45			154	577	122	508	1085
03:00			12		26			15:00			126		127		
03:15			12		28			15:15			138		131		
03:30			5		33			15:30			150		166		
03:45			12	41	20	107	148	15:45			167	581	142	566	1147
04:00			12		19			16:00			134		219		
04:15			15		15			16:15			106		169		
04:30			12		20			16:30			136		161		
04:45			12	51	26	80	131	16:45			139	515	125	674	1189
05:00			17		27			17:00			110		154		
05:15			23		36			17:15			130		161		
05:30			38		22			17:30			84		130		
05:45			40	118	28	113	231	17:45			97	421	112	557	978
06:00			52		40			18:00			97		98		
06:15			37		49			18:15			120		101		
06:30			73		43			18:30			100		77		
06:45			83	245	68	200	445	18:45			89	406	82	358	764
07:00			88		73			19:00			67		74		
07:15			83		54			19:15			67		74		
07:30			96		72			19:30			69		78		
07:45			95	362	39	238	600	19:45			60	263	60	286	549
08:00			108		73			20:00			54		50		
08:15			97		66			20:15			64		58		
08:30			100		57			20:30			50		59		
08:45			84	389	69	265	654	20:45			47	215	48	215	430
09:00			96		53			21:00			55		41		
09:15			121		66			21:15			47		44		
09:30			86		67			21:30			60		54		
09:45			101	404	65	251	655	21:45			55	217	54	193	410
10:00			106		74			22:00			54		68		
10:15			130		65			22:15			38		32		
10:30			144		58			22:30			46		46		
10:45			134	514	65	262	776	22:45			46	184	56	202	386
11:00			93		55			23:00			35		51		
11:15			99		83			23:15			33		47		
11:30			104		81			23:30			22		60		
11:45			119	415	68	287	702	23:45			43	133	44	202	335
Total Vol.				2725		2235	**4960**					4492		4564	**9056**

Daily Totals

NB	SB	EB	WB	Combined
		7217	6799	14016

	AM			PM		
Split %	54.9%	45.1%	35.4%	49.6%	50.4%	64.6%
Peak Hour	10:00	11:45	11:45	15:15	15:30	15:30
Volume	514	337	810	589	696	1253
P.H.F.	0.89	0.66	0.85	0.88	0.79	0.89

A9

Volumes for: Thursday, February 24, 2005 City: pala Project #: 05-3060-006

Location: Pala Rd btwn Course Canyon and James Ln

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			9		62			12:00			128		55		
00:15			11		44			12:15			112		108		
00:30			17		47			12:30			108		127		
00:45			20	57	55	208	265	12:45			121	469	97	387	856
01:00			23		40			13:00			131		74		
01:15			18		38			13:15			123		88		
01:30			15		36			13:30			108		132		
01:45			15	71	34	148	219	13:45			139	501	111	405	906
02:00			22		26			14:00			170		88		
02:15			18		26			14:15			119		157		
02:30			16		31			14:30			130		132		
02:45			28	84	33	116	200	14:45			157	576	121	498	1074
03:00			15		28			15:00			124		131		
03:15			14		41			15:15			143		159		
03:30			6		26			15:30			144		156		
03:45			14	49	23	118	167	15:45			146	557	186	632	1189
04:00			15		21			16:00			140		166		
04:15			14		22			16:15			111		149		
04:30			16		25			16:30			130		159		
04:45			18	63	23	91	154	16:45			126	507	134	608	1115
05:00			12		34			17:00			106		192		
05:15			21		29			17:15			132		121		
05:30			47		25			17:30			72		121		
05:45			47	127	38	126	253	17:45			97	407	96	530	937
06:00			62		34			18:00			85		102		
06:15			49		46			18:15			109		78		
06:30			70		64			18:30			82		79		
06:45			101	282	71	215	497	18:45			85	361	70	329	690
07:00			94		48			19:00			65		79		
07:15			87		66			19:15			64		67		
07:30			110		64			19:30			66		64		
07:45			89	380	59	237	617	19:45			56	251	51	261	512
08:00			108		68			20:00			53		65		
08:15			107		60			20:15			63		47		
08:30			84		52			20:30			51		59		
08:45			89	388	67	247	635	20:45			40	207	42	213	420
09:00			101		59			21:00			47		44		
09:15			117		56			21:15			50		58		
09:30			91		66			21:30			54		48		
09:45			100	409	80	261	670	21:45			59	210	67	217	427
10:00			115		62			22:00			51		39		
10:15			120		53			22:15			36		43		
10:30			150		64			22:30			40		43		
10:45			128	513	69	248	761	22:45			51	178	56	181	359
11:00			97		66			23:00			34		40		
11:15			94		84			23:15			35		56		
11:30			138		77			23:30			21		62		
11:45			117	446	106	333	779	23:45			44	134	48	206	340
Total Vol.				2869		2348	5217					4358		4467	8825

Daily Totals

NB	SB	EB	WB	Combined
		7227	6815	14042

	AM			PM		
Split %	55.0%	45.0%	37.2%	49.4%	50.6%	62.8%
Peak Hour	10:00	11:45	11:45	14:00	15:15	15:15
Volume	513	396	861	576	667	1240
P.H.F.	0.86	0.78	0.92	0.85	0.90	0.93

A10

Pala Prominance

Volumes for: Thursday, March 17, 2005 City: Fallbrook Project #: 05-3107-001

Location: SR-76 (Pala Rd) btwn Jamies Way and Pala Del Norte Rd

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			23		50			12:00			107		91		
00:15			15		53			12:15			127		95		
00:30			10		46			12:30			127		97		
00:45			11	59	46	195	254	12:45			114	475	68	351	826
01:00			9		46			13:00			94		110		
01:15			11		50			13:15			105		96		
01:30			11		52			13:30			158		100		
01:45			12	43	20	168	211	13:45			112	469	101	407	876
02:00			13		41			14:00			114		78		
02:15			19		34			14:15			123		125		
02:30			11		28			14:30			139		96		
02:45			10	53	46	149	202	14:45			106	482	117	416	898
03:00			5		38			15:00			115		138		
03:15			4		25			15:15			95		107		
03:30			7		19			15:30			135		147		
03:45			9	25	26	108	133	15:45			137	482	116	508	990
04:00			6		15			16:00			127		108		
04:15			11		21			16:15			135		111		
04:30			9		26			16:30			140		108		
04:45			23	49	30	92	141	16:45			122	524	103	430	954
05:00			27		26			17:00			124		81		
05:15			24		42			17:15			138		101		
05:30			58		43			17:30			161		97		
05:45			61	170	49	160	330	17:45			173	596	86	365	961
06:00			47		48			18:00			148		59		
06:15			43		51			18:15			146		87		
06:30			75		52			18:30			154		82		
06:45			59	224	63	214	438	18:45			129	577	86	314	891
07:00			72		63			19:00			99		66		
07:15			71		77			19:15			104		73		
07:30			95		61			19:30			67		66		
07:45			91	329	51	252	581	19:45			66	336	56	261	597
08:00			74		36			20:00			55		43		
08:15			90		79			20:15			78		88		
08:30			98		70			20:30			53		72		
08:45			76	338	75	260	598	20:45			53	239	61	264	503
09:00			104		56			21:00			40		63		
09:15			98		68			21:15			53		67		
09:30			115		71			21:30			38		45		
09:45			122	439	55	250	689	21:45			40	171	92	267	438
10:00			107		66			22:00			35		214		
10:15			111		74			22:15			37		170		
10:30			112		81			22:30			44		108		
10:45			131	461	75	296	757	22:45			35	151	103	595	746
11:00			122		89			23:00			12		107		
11:15			132		58			23:15			37		89		
11:30			131		89			23:30			26		62		
11:45			115	500	82	318	818	23:45			22	97	78	336	433
Total Vol.				2690		2462	5152					4599		4514	9113

Daily Totals

NB	SB	EB	WB	Combined
		7289	6976	14265

	AM			PM		
Split %	52.2%	47.8%	36.1%	50.5%	49.5%	63.9%
Peak Hour	10:45	11:45	11:45	17:30	22:00	15:30
Volume	516	365	841	628	595	1016
P.H.F.	0.98	0.94	0.94	0.91	0.70	0.90

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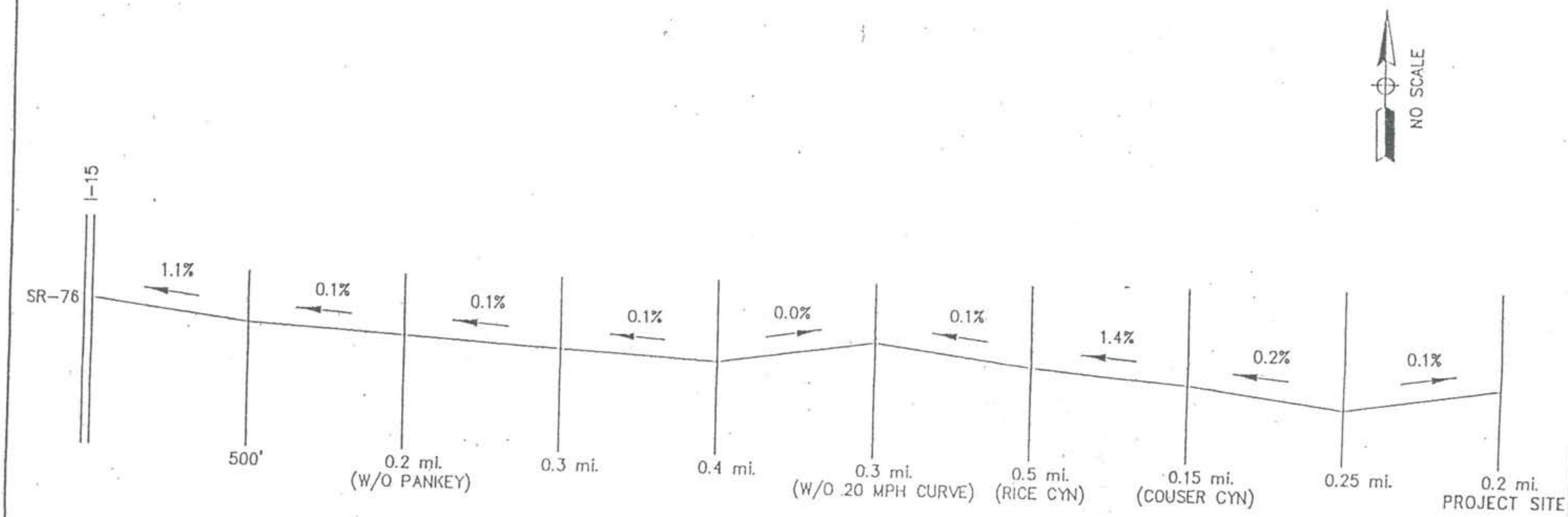
A10-A



NOTE:
MILEAGE DISTANCE IS APPROXIMATE

Darnell & ASSOCIATES, INC.

FIGURE A

VERTICAL GRADE PROFILE SKETCH
SR-76 FROM I-15 TO PROJECT

Aii

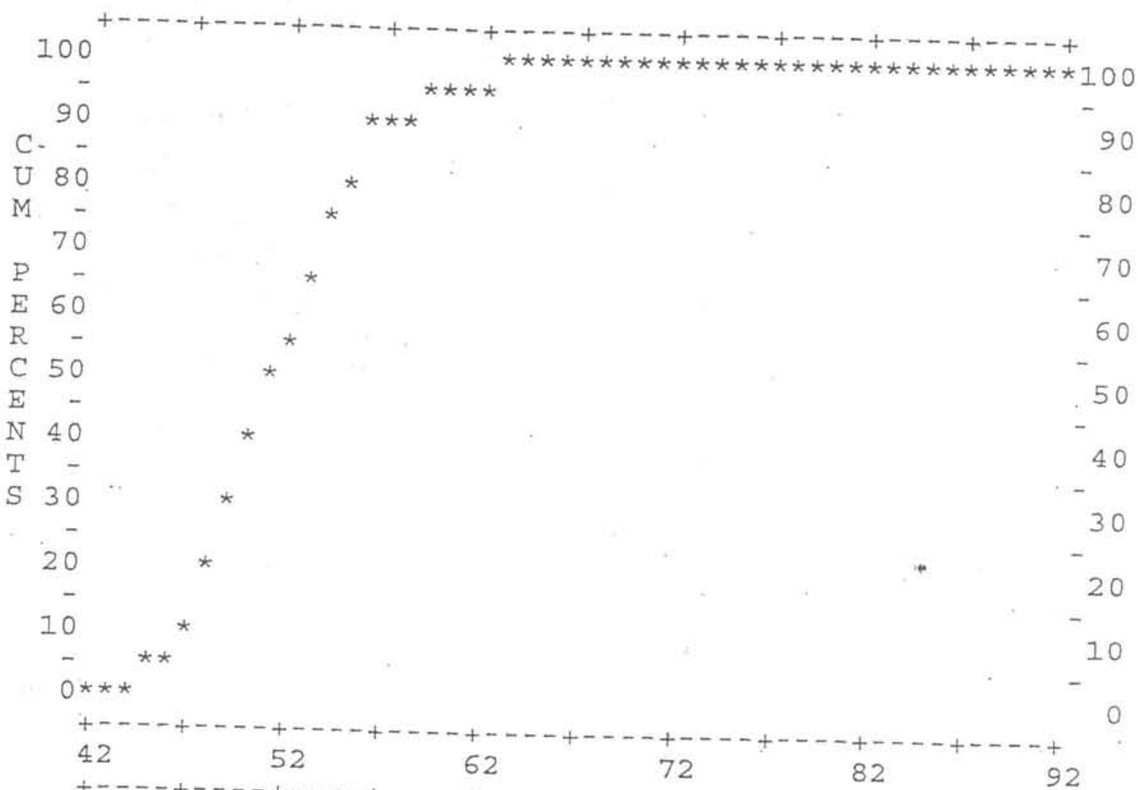
Bather Belrose Boje, Inc. SPEEDPLOT Program

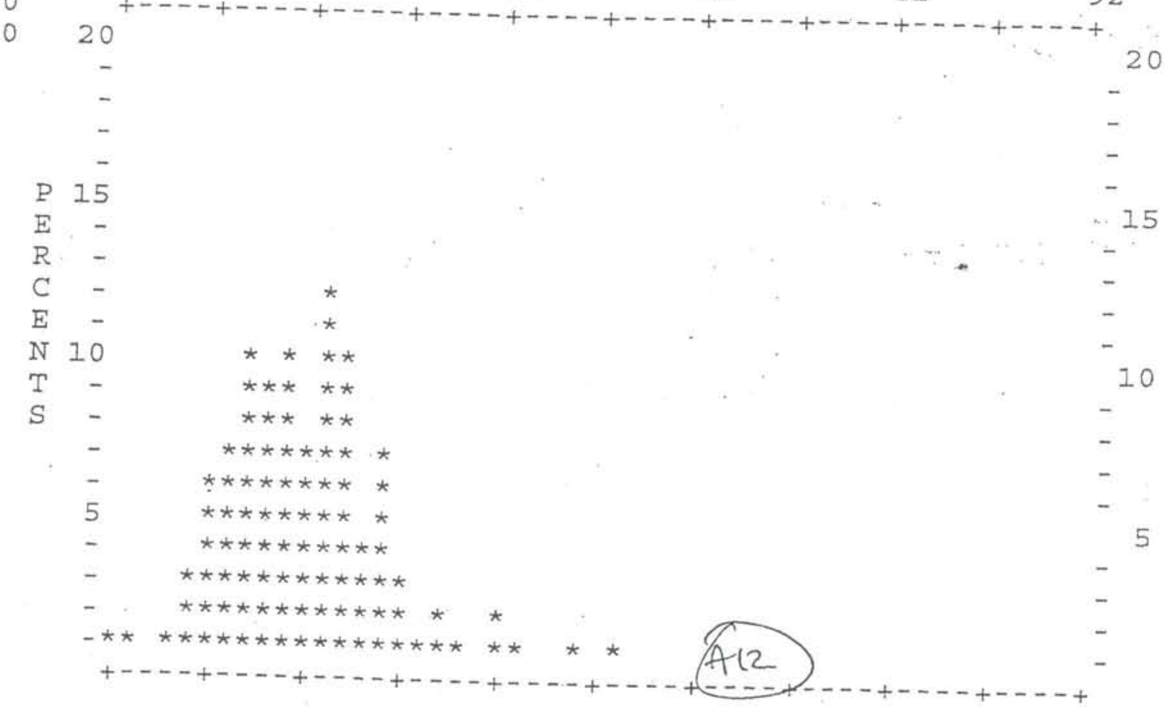
TREET................ 4 Blk. SR76 LOCATION 4
IMITS................ W/O PANKEY RD to E/O BRIDGE

IRECTION(S)..........EB+WB
ATE..................7/27/99
IME..................1300
OSTED SPEED LIMIT....55

50TH PERCENTILE SPEED..................52
85TH PERCENTILE SPEED..................56
10 MPH PACE SPEED..........47 through 56
PERCENT IN PACE SPEED.............. 82.0
PERCENT OVER PACE SPEED.............12.0
PERCENT UNDER PACE SPEED............ 6.0
RANGE OF SPEEDS.................42 to 68
VEHICLES OBSERVED................... 100
AVERAGE SPEED.......................52.2

EED	NO.	PCT.	CUM. PCT.
2	1	1.0	1.0
3	1	1.0	2.0
4	0	0.0	2.0
5	1	1.0	3.0
6	3	3.0	6.0
7	6	6.0	12.0
8	7	7.0	19.0
9	10	10.0	29.0
0	9	9.0	38.0
1	10	10.0	48.0
2	7	7.0	55.0
3	12	12.0	67.0
4	10	10.0	77.0
5	4	4.0	81.0
5	7	7.0	88.0
7	3	3.0	91.0
3	1	1.0	92.0
}	2	2.0	94.0
)	1	1.0	95.0
-	0	0.0	95.0
:	2	2.0	97.0
	1	1.0	98.0
	0	0.0	98.0
	0	0.0	98.0
	1	1.0	99.0
	0	0.0	99.0
	1	1.0	100.0





A12

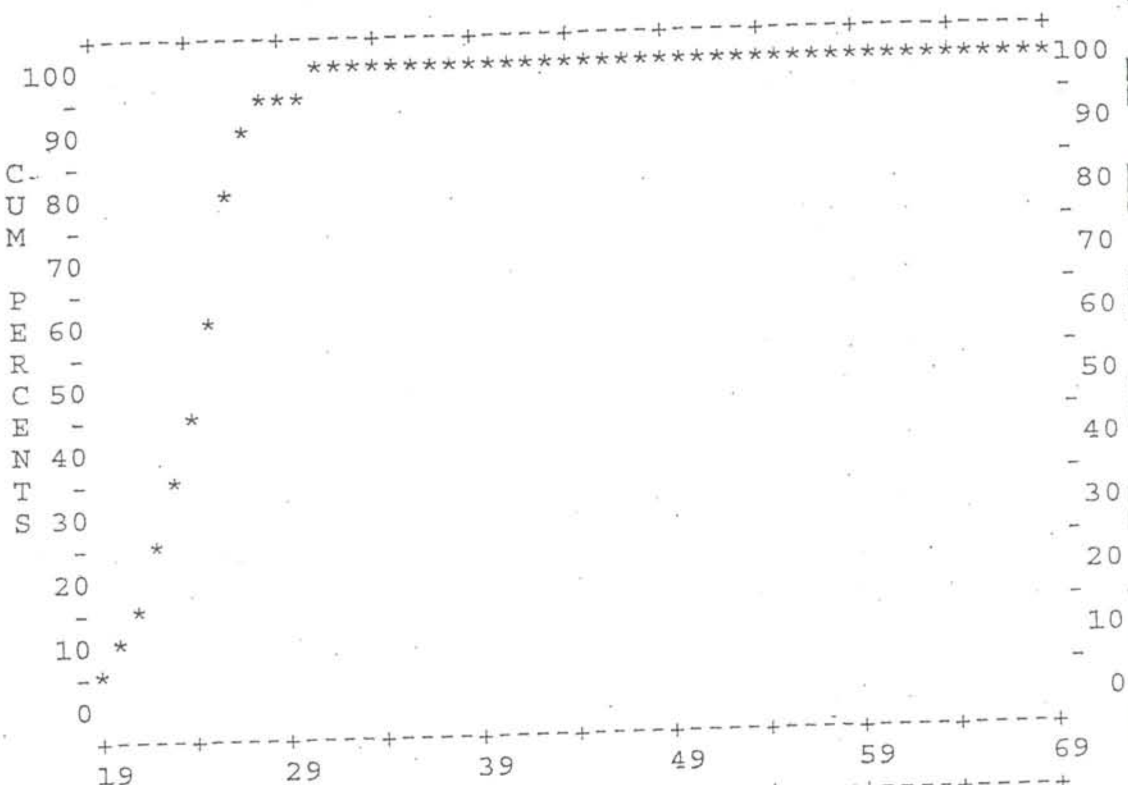
Bather Belrose Boje, Inc. SPEEDPLOT Program

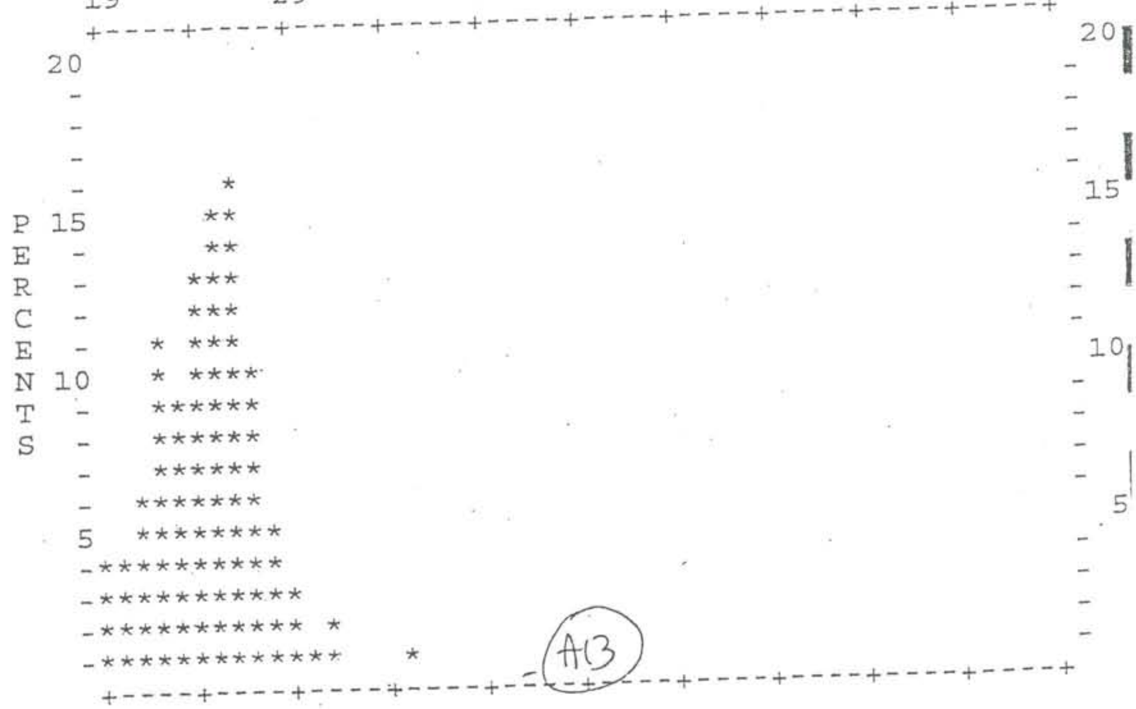
REET................ 3 Blk. SR76 LOCATION 3
MITS................ WITHIN 20 MPH CURV to

RECTION(S)..........EB+WB
TE..................7/27/99
ME..................0900
STED SPEED LIMIT....55

50TH PERCENTILE SPEED..................25
85TH PERCENTILE SPEED..................27
10 MPH PACE SPEED..........19 through 28
PERCENT IN PACE SPEED............... 93.0
PERCENT OVER PACE SPEED............. 7.0
PERCENT UNDER PACE SPEED............ 0.0
RANGE OF SPEEDS.................19 to 35
VEHICLES OBSERVED................... 100
AVERAGE SPEED.......................24.6

'EED	NO.	PCT.	CUM. PCT.
.9	4	4.0	4.0
:0	4	4.0	8.0
:1	6	6.0	14.0
:2	11	11.0	25.0
:3	9	9.0	34.0
:4	13	13.0	47.0
25	15	15.0	62.0
26	16	16.0	78.0
27	10	10.0	88.0
28	5	5.0	93.0
29	3	3.0	96.0
30	1	1.0	97.0
31	2	2.0	99.0
32	0	0.0	99.0
33	0	0.0	99.0
34	0	0.0	99.0
35	1	1.0	100.0





A13

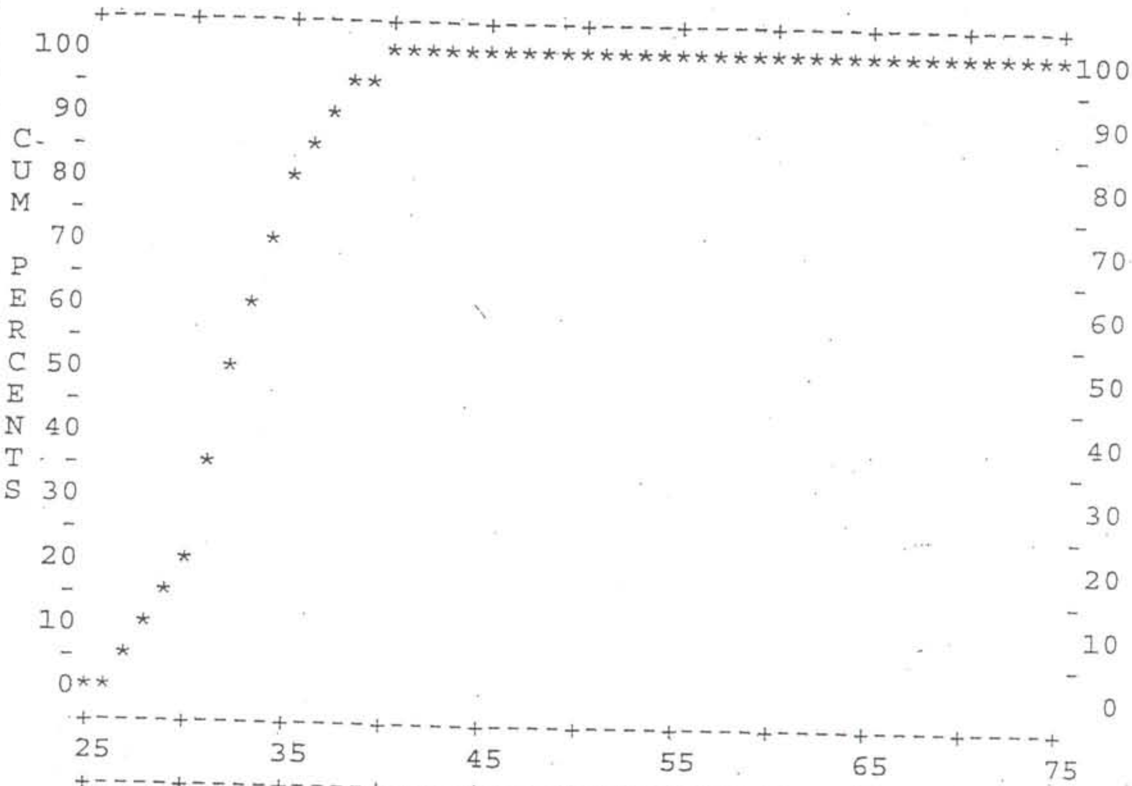
Bather Belrose Boje, Inc. SPEEDPLOT Program

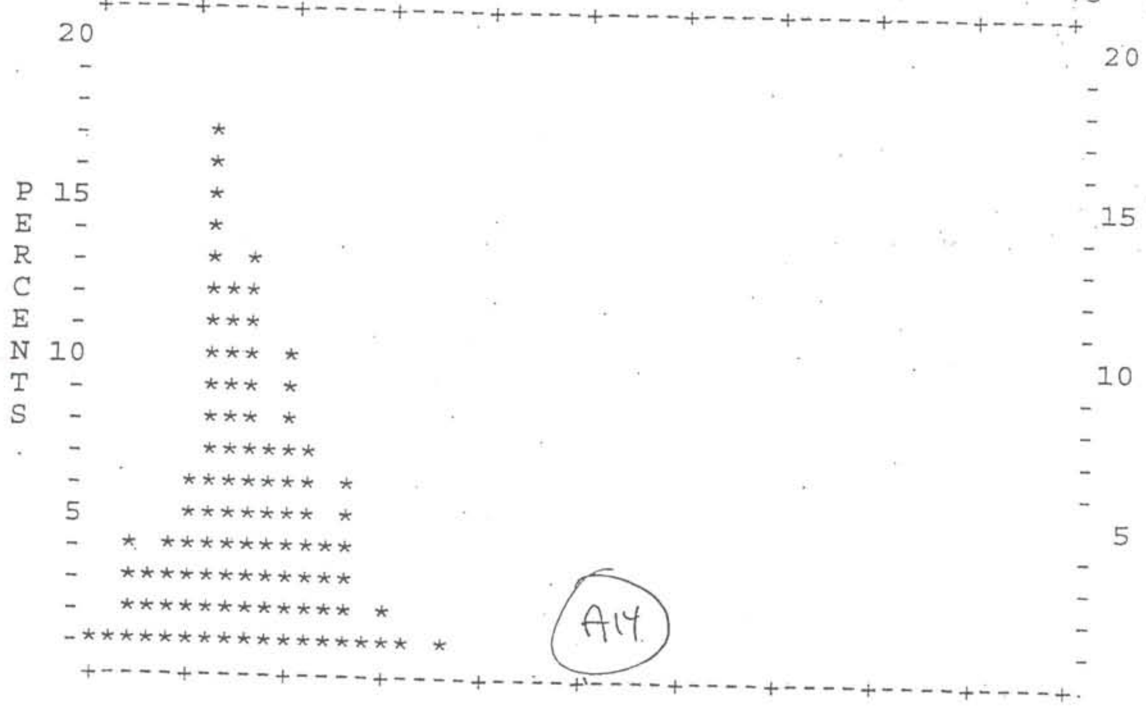
TREET................ 2 Blk. SR-76 LOCATION 2
IMITS................ EAST OF 20MPH CURV to

IRECTION(S)..........EB+WB
ATE..................7/27/99
IME..................1000
)STED SPEED LIMIT....55

50TH PERCENTILE SPEED..................33
85TH PERCENTILE SPEED..................36
10 MPH PACE SPEED..........29 through 38
PERCENT IN PACE SPEED.............. 86.0
PERCENT OVER PACE SPEED............. 5.0
PERCENT UNDER PACE SPEED............ 9.0
RANGE OF SPEEDS.................25 to 43
VEHICLES OBSERVED................... 100
AVERAGE SPEED.......................33.0

PEED	NO.	PCT.	CUM. PCT.
:5	1	1.0	1.0
:6	1	1.0	2.0
:7	4	4.0	6.0
:8	3	3.0	9.0
9	4	4.0	13.0
0	6	6.0	19.0
1	17	17.0	36.0
2	12	12.0	48.0
3	13	13.0	61.0
4	7	7.0	68.0
5	10	10.0	78.0
6	7	7.0	85.0
7	4	4.0	89.0
8	6	6.0	95.0
9	1	1.0	96.0
0	2	2.0	98.0
1	1	1.0	99.0
2	0	0.0	99.0
3	1	1.0	100.0





A14

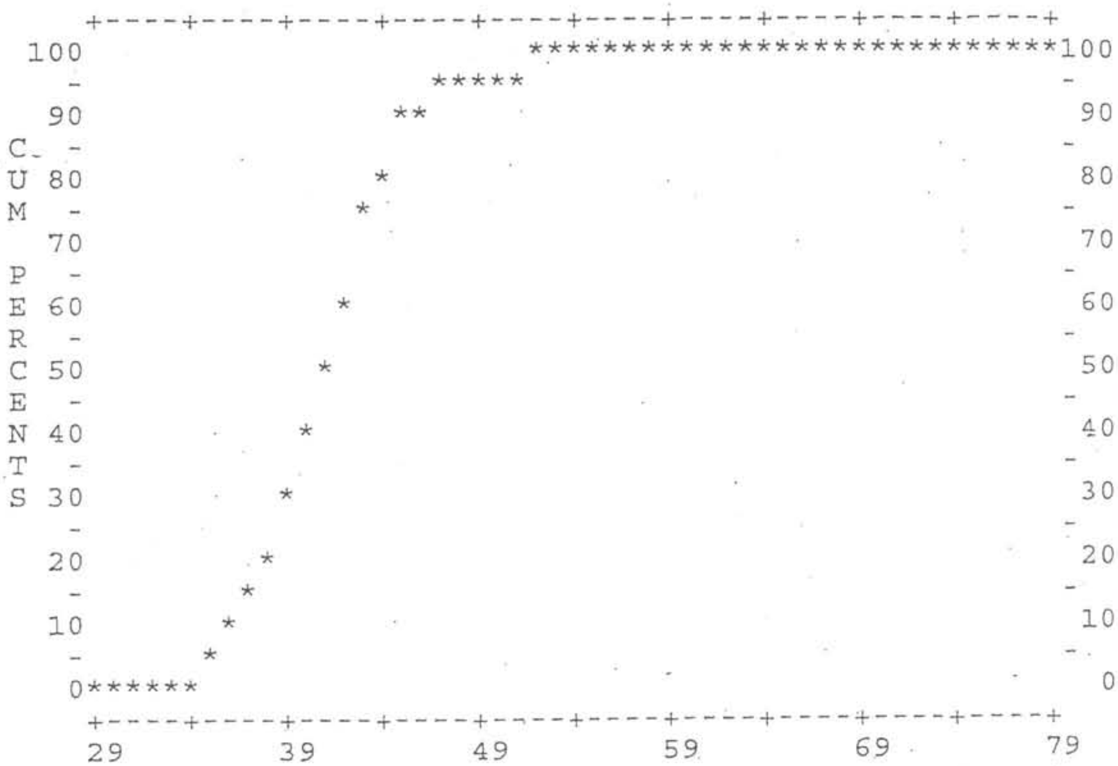
Bather Belrose Boje, Inc. SPEEDPLOT Program

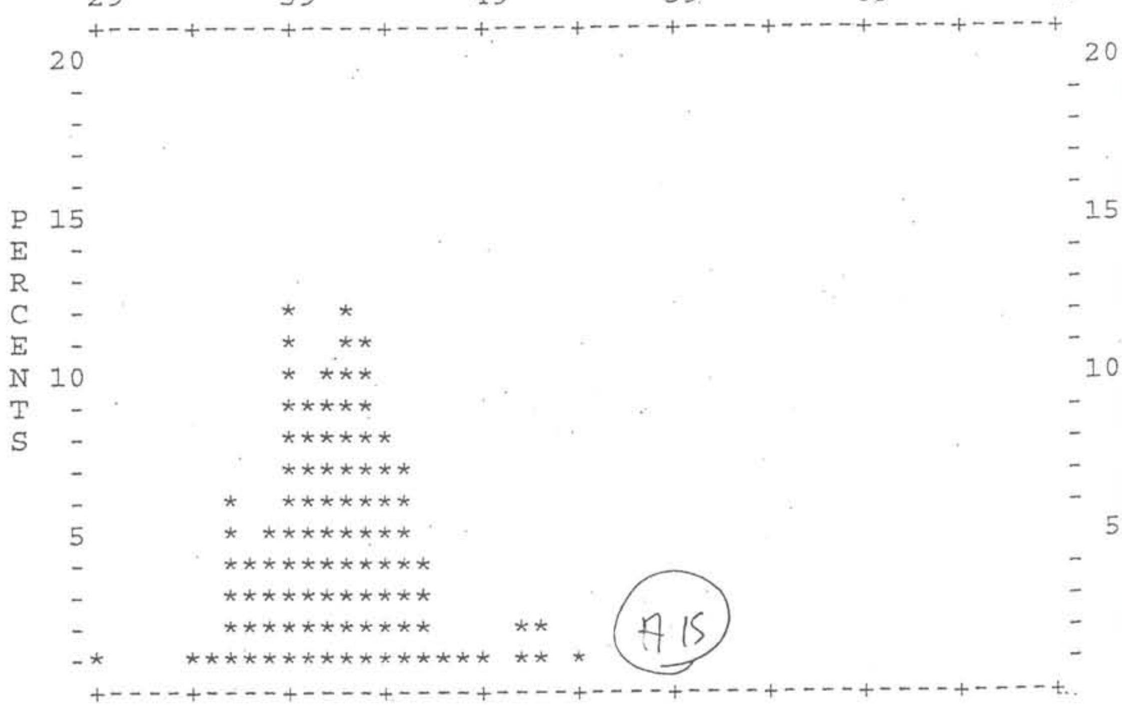
TREET................ 1 Blk. SR-76 LOCATION 1
IMITS................ VERBLOOM DAIRY to

IRECTION(S)..........EB+WB
ATE..................7/27/99
IME..................1100
OSTED SPEED LIMIT....55

50TH PERCENTILE SPEED..................42
85TH PERCENTILE SPEED..................45
10 MPH PACE SPEED..........36 through 45
PERCENT IN PACE SPEED............... 84.8
PERCENT OVER PACE SPEED..............12.1
PERCENT UNDER PACE SPEED............ 3.0
RANGE OF SPEEDS.................29 to 54
VEHICLES OBSERVED................... 99
AVERAGE SPEED........................41.6

PEED	NO.	PCT.	CUM. PCT.
29	1	1.0	1.0
30	0	0.0	1.0
31	0	0.0	1.0
32	0	0.0	1.0
33	0	0.0	1.0
34	1	1.0	2.0
35	1	1.0	3.0
36	6	6.1	9.1
37	4	4.0	13.1
38	5	5.1	18.2
39	12	12.1	30.3
40	9	9.1	39.4
41	10	10.1	49.5
42	12	12.1	61.6
43	11	11.1	72.7
44	8	8.1	80.8
45	7	7.1	87.9
46	4	4.0	91.9
47	1	1.0	92.9
48	1	1.0	93.9
49	1	1.0	94.9
50	0	0.0	94.9
51	2	2.0	97.0
52	2	2.0	99.0
53	0	0.0	99.0
54	1	1.0	100.0





A 15

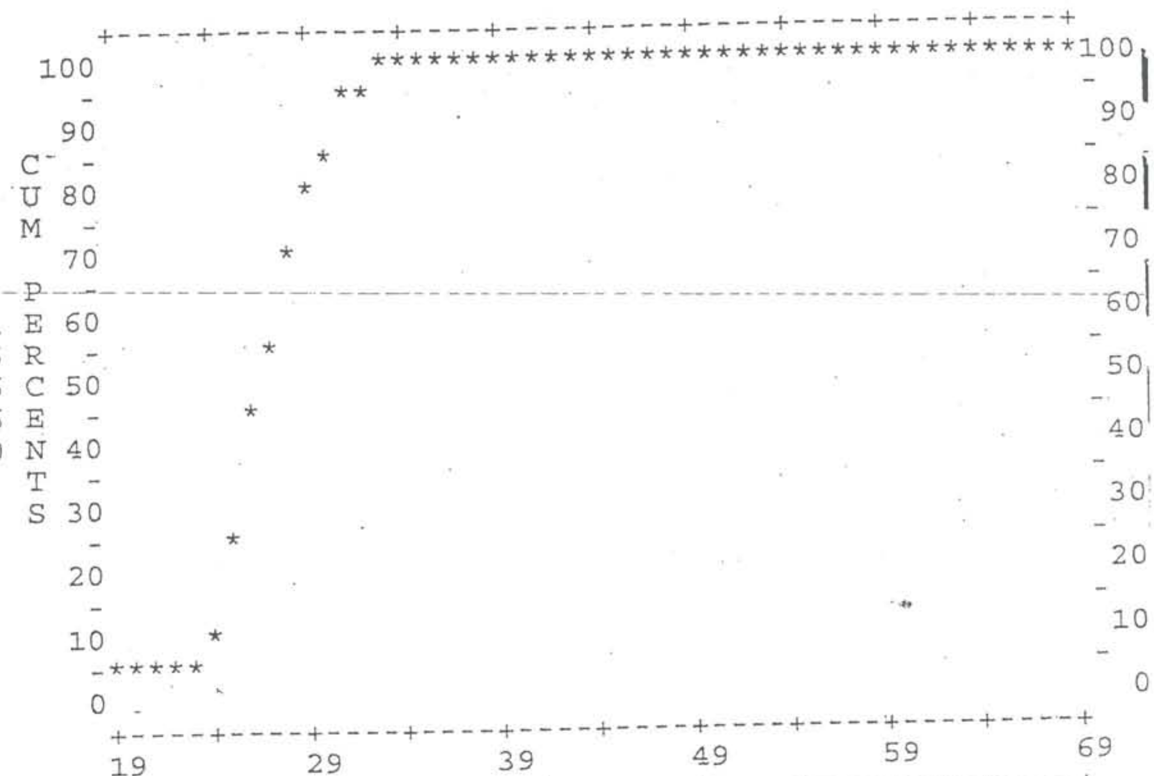
Bather Belrose Boje, Inc. SPEEDPLOT Program

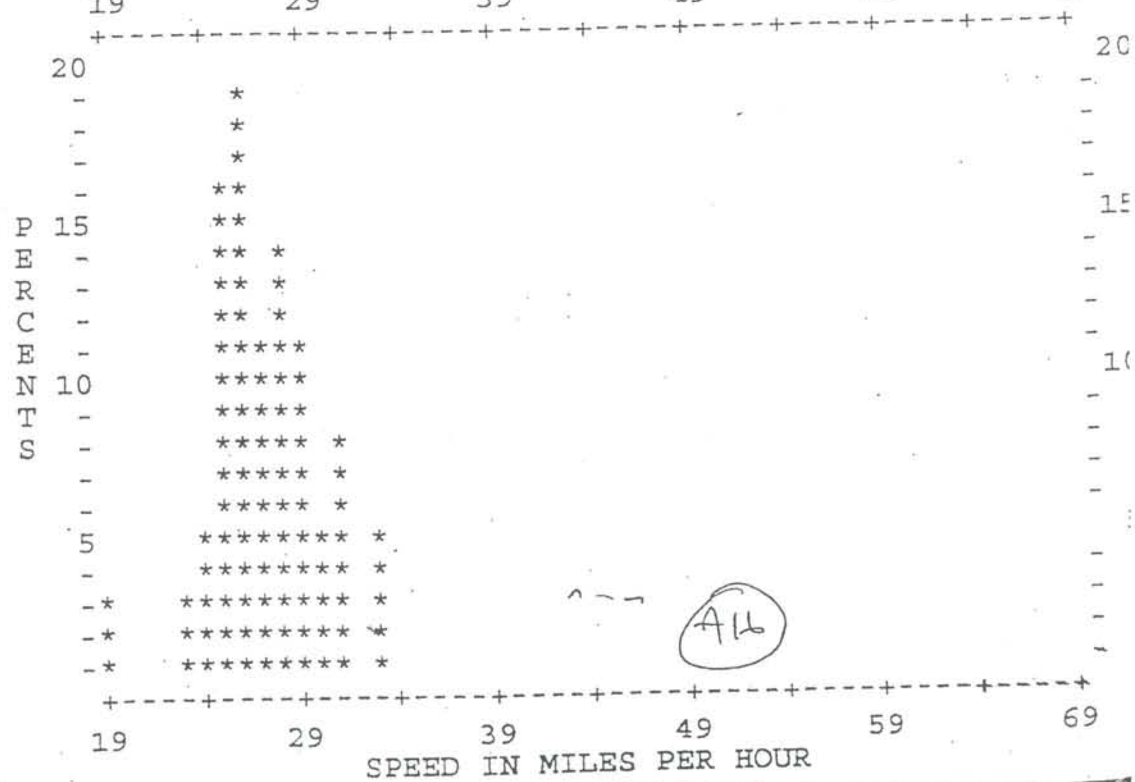
REET.................. 0 Blk. State Route 76 (Cars)
MITS.................. East of I-15 to 25 MPH Curve

RECTION(S)..........Westbound
ATE.................08/15/2002
ME..................2:00PM
OSTED SPEED LIMIT....25

50TH PERCENTILE SPEED.................27
85TH PERCENTILE SPEED.................30
10 MPH PACE SPEED..........24 through 33
PERCENT IN PACE SPEED.............. 94.6
PERCENT OVER PACE SPEED............. 0.0
PERCENT UNDER PACE SPEED............ 5.4
RANGE OF SPEEDS................19 to 33
VEHICLES OBSERVED.................. 37
AVERAGE SPEED......................27.2

PEED	NO.	PCT.	CUM. PCT.
19	1	2.7	2.7
20	0	0.0	2.7
21	0	0.0	2.7
22	0	0.0	2.7
23	1	2.7	5.4
24	2	5.4	10.8
25	6	16.2	27.0
26	7	18.9	45.9
27	4	10.8	56.8
28	5	13.5	70.3
29	4	10.8	81.1
30	2	5.4	86.5
31	3	8.1	94.6
32	0	0.0	94.6
33	2	5.4	100.0





A16

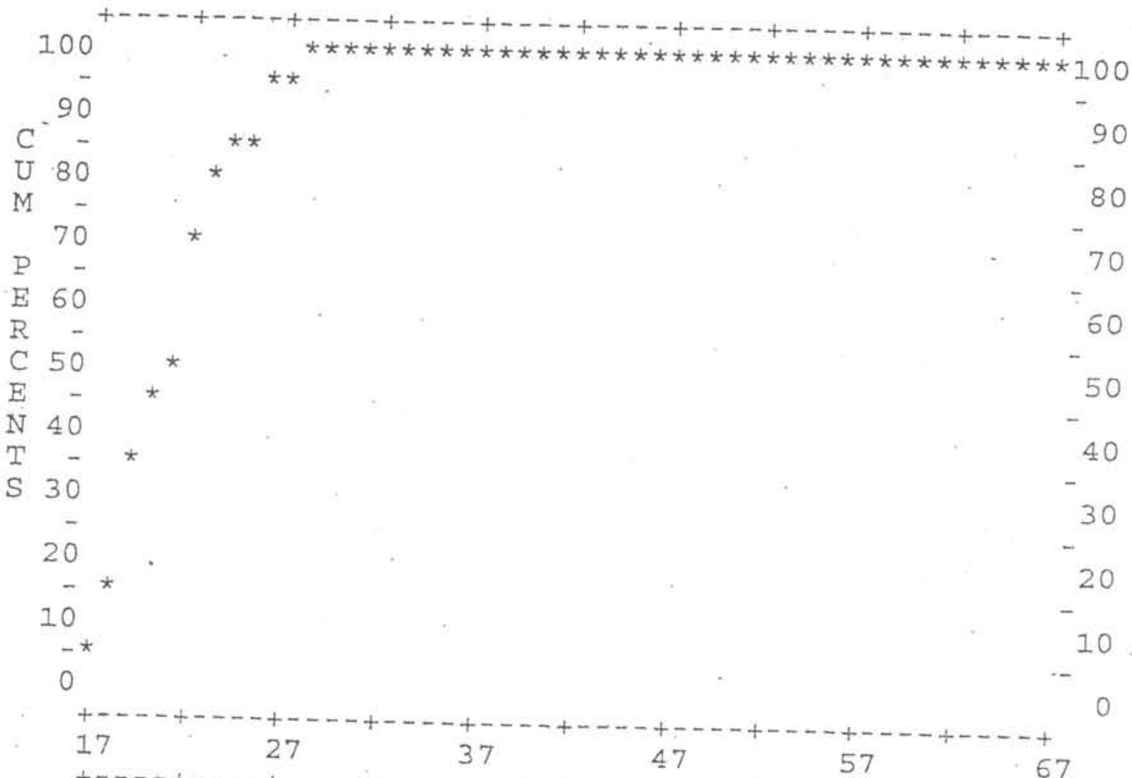
Bather Belrose Boje, Inc. SPEEDPLOT Program

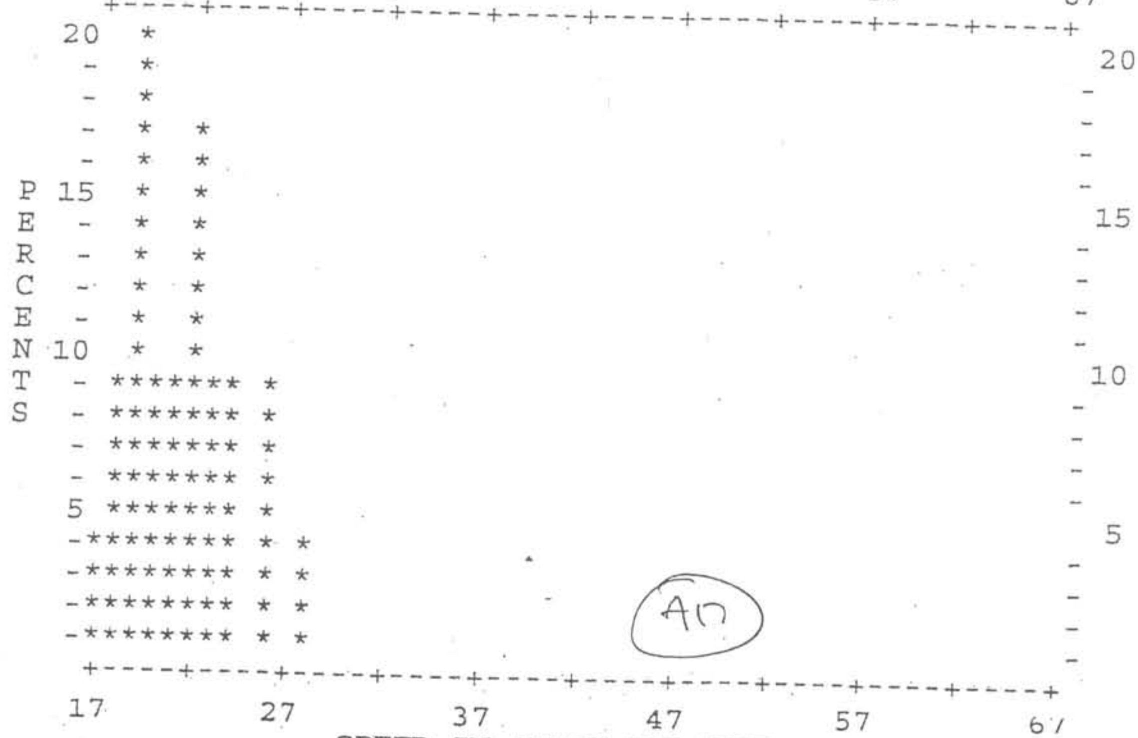
TREET................. 0 Blk. State Route 76 (Trucks)
IMITS................. East of I-15 to 25 MPH Curve

IRECTION(S)..........Westbound
ATE..................08/15/2002
IME..................2:00PM
OSTED SPEED LIMIT....25

50TH PERCENTILE SPEED.................21
85TH PERCENTILE SPEED.................24
10 MPH PACE SPEED..........17 through 26
PERCENT IN PACE SPEED.............. 95.7
PERCENT OVER PACE SPEED............. 4.3
PERCENT UNDER PACE SPEED............ 0.0
RANGE OF SPEEDS.................17 to 28
VEHICLES OBSERVED................... 23
AVERAGE SPEED.......................21.4

PEED	NO.	PCT.	CUM. PCT.
.7	1	4.3	4.3
.8	2	8.7	13.0
.9	5	21.7	34.8
0	2	8.7	43.5
1	2	8.7	52.2
2	4	17.4	69.6
3	2	8.7	78.3
4	2	8.7	87.0
5	0	0.0	87.0
6	2	8.7	95.7
7	0	0.0	95.7
8	1	4.3	100.0





4n

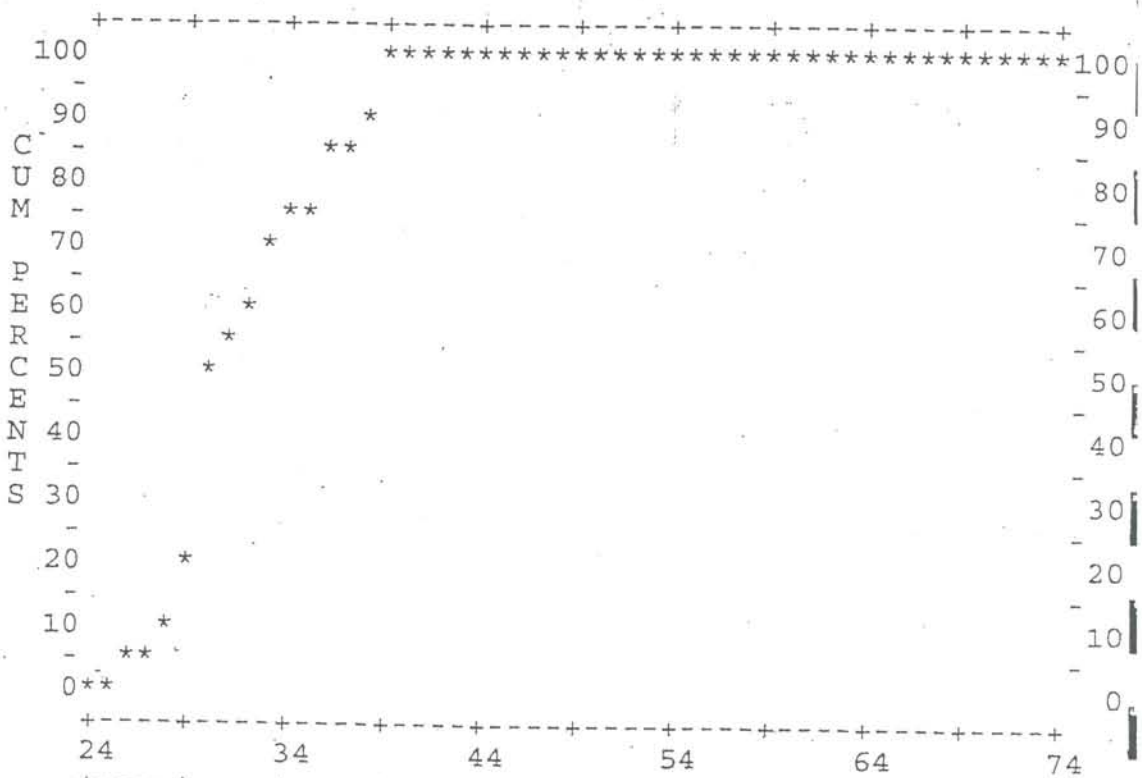
Bather Belrose Boje, Inc. SPEEDPLOT Program

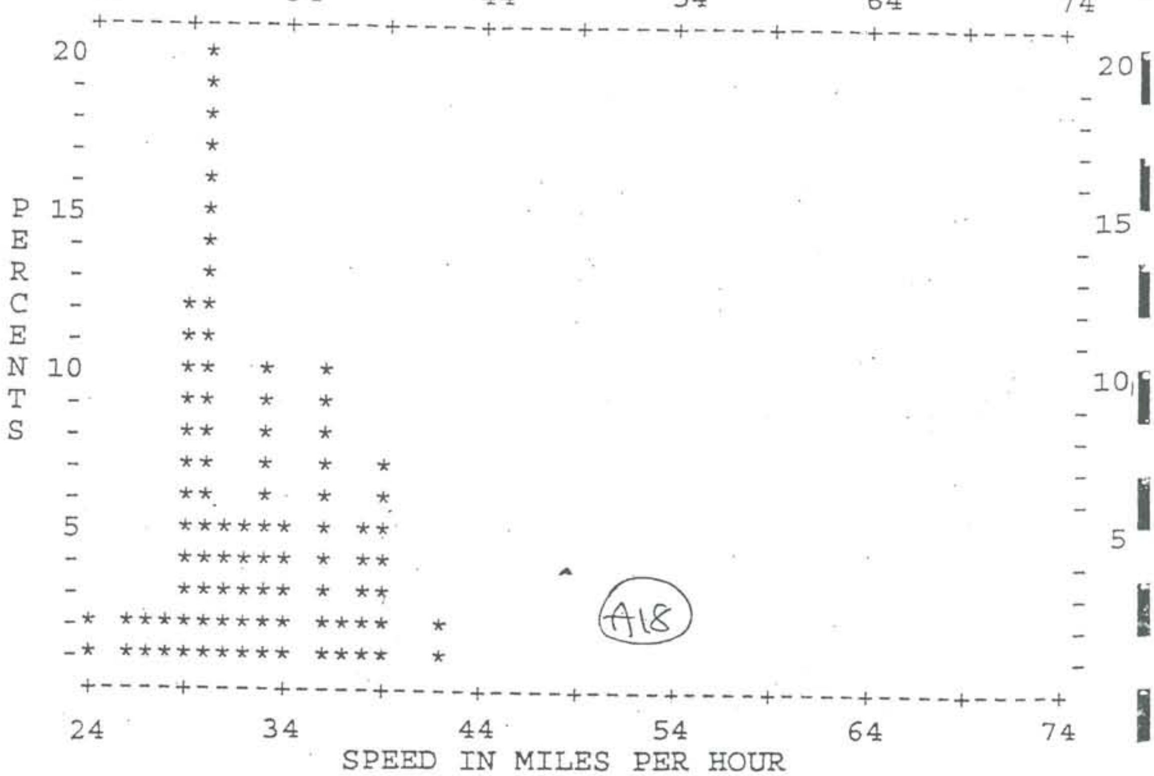
STREET................ 0 Blk. State Route 76 (Cars)
LIMITS............... East of I-15 to 25 MPH Curve

DIRECTION(S)..........Eastbound
DATE..................08/15/2002
TIME..................2:00PM
POSTED SPEED LIMIT....25

50TH PERCENTILE SPEED..................30
85TH PERCENTILE SPEED..................37
10 MPH PACE SPEED..........29 through 38
PERCENT IN PACE SPEED............... 81.0
PERCENT OVER PACE SPEED............. 9.5
PERCENT UNDER PACE SPEED............ 9.5
RANGE OF SPEEDS.................24 to 42
VEHICLES OBSERVED................... 42
AVERAGE SPEED.......................32.2

SPEED	NO.	PCT.	CUM. PCT.
24	1	2.4	2.4
25	0	0.0	2.4
26	1	2.4	4.8
27	1	2.4	7.1
28	1	2.4	9.5
29	5	11.9	21.4
30	12	28.6	50.0
31	2	4.8	54.8
32	2	4.8	59.5
33	4	9.5	69.0
34	2	4.8	73.8
35	0	0.0	73.8
36	4	9.5	83.3
37	1	2.4	85.7
38	2	4.8	90.5
39	3	7.1	97.6
40	0	0.0	97.6
41	0	0.0	97.6
42	1	2.4	100.0





A18

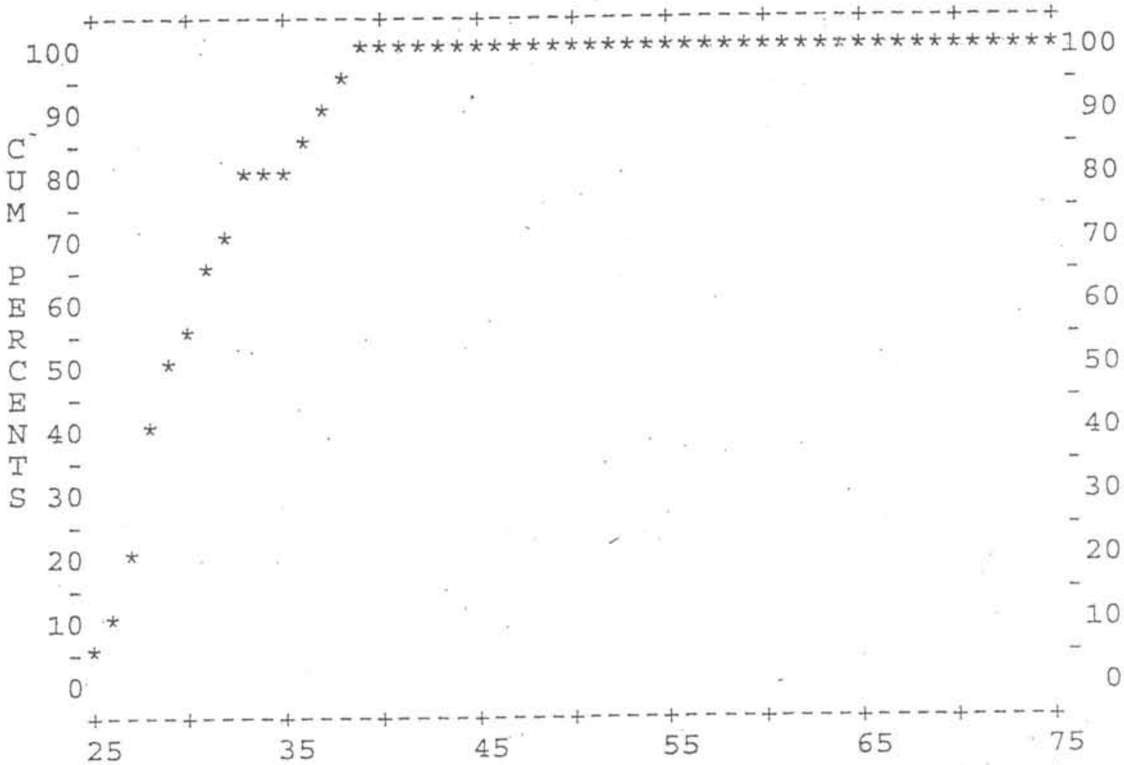
Bather Belrose Boje, Inc. SPEEDPLOT Program

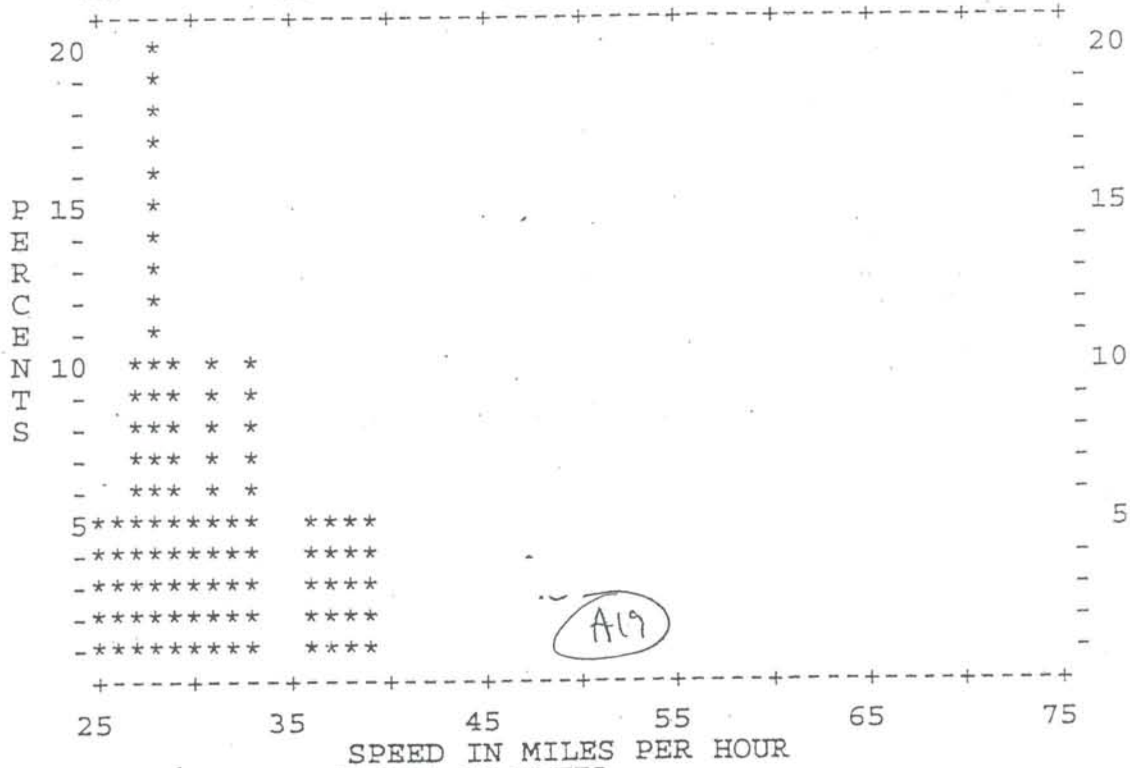
TREET.................. 0 Blk. State Route 76 (Trucks)
IMITS.................. East of I-15 to 25 MPH Curve

IRECTION(S)..........Eastbound
ATE..................08/15/2002
IME..................2:00PM
OSTED SPEED LIMIT....25

50TH PERCENTILE SPEED..................29
85TH PERCENTILE SPEED..................36
10 MPH PACE SPEED..........25 through 34
PERCENT IN PACE SPEED.............. 80.0
PERCENT OVER PACE SPEED.............20.0
PERCENT UNDER PACE SPEED........... 0.0
RANGE OF SPEEDS..................25 to 39
VEHICLES OBSERVED.................. 20
AVERAGE SPEED.......................30.8

PEED	NO.	PCT.	CUM. PCT.
25	1	5.0	5.0
26	1	5.0	10.0
27	2	10.0	20.0
28	4	20.0	40.0
29	2	10.0	50.0
30	1	5.0	55.0
31	2	10.0	65.0
32	1	5.0	70.0
33	2	10.0	80.0
34	0	0.0	80.0
35	0	0.0	80.0
36	1	5.0	85.0
37	1	5.0	90.0
38	1	5.0	95.0
39	1	5.0	100.0





A19

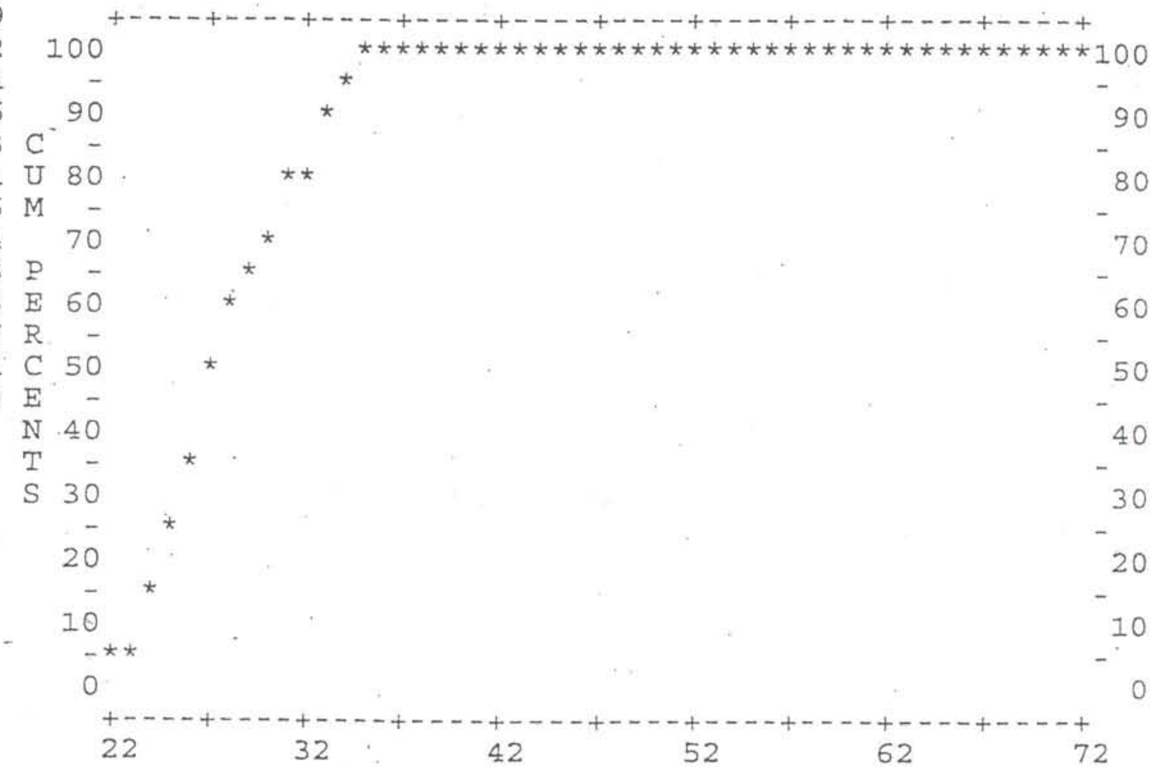
Bather Belrose Boje, Inc. SPEEDPLOT Program

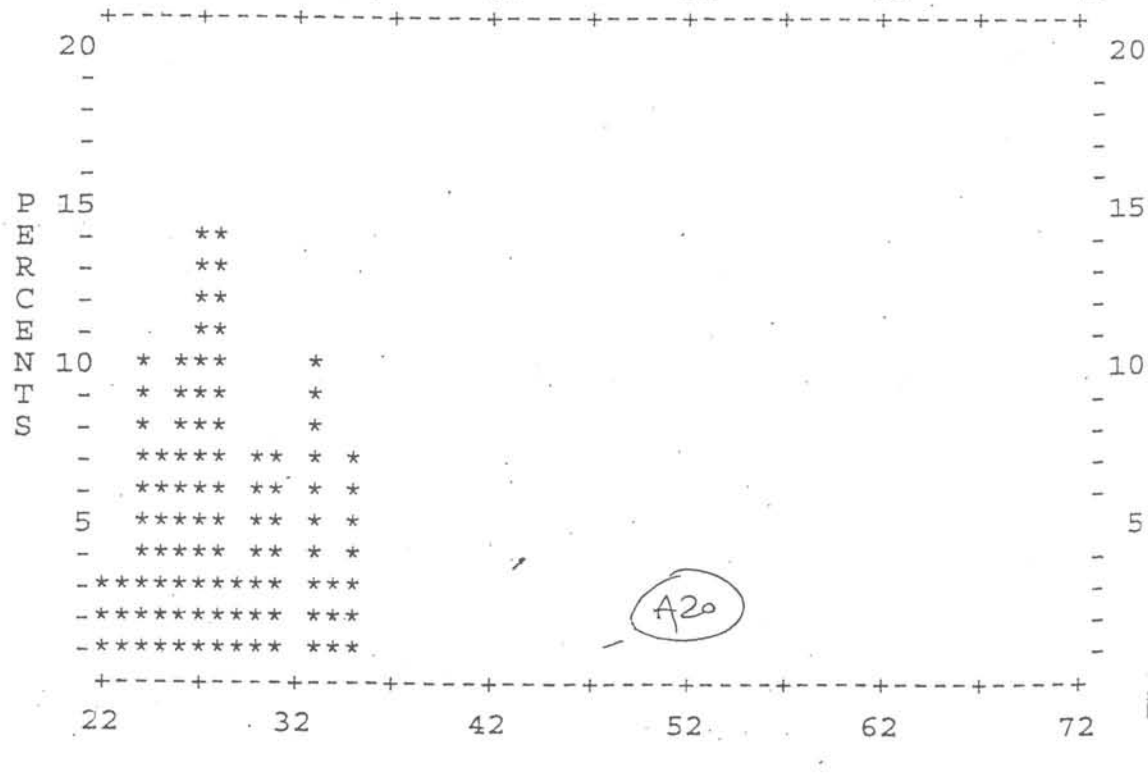
STREET.................. 0 Blk. State Route 76 (Cars)
LIMITS.................. East of I-15 to 20 MPH Curve

DIRECTION(S)..........Westbound
DATE...................08/15/2002
TIME...................3:00PM
POSTED SPEED LIMIT....20

50TH PERCENTILE SPEED..................28
85TH PERCENTILE SPEED..................33
10 MPH PACE SPEED...........24 through 33
PERCENT IN PACE SPEED.............. 82.8
PERCENT OVER PACE SPEED............10.3
PERCENT UNDER PACE SPEED........... 6.9
RANGE OF SPEEDS...............22 to 35
VEHICLES OBSERVED.................. 29
AVERAGE SPEED......................28.2

SPEED	NO.	PCT.	CUM. PCT.
22	1	3.4	3.4
23	1	3.4	6.9
24	3	10.3	17.2
25	2	6.9	24.1
26	3	10.3	34.5
27	4	13.8	48.3
28	4	13.8	62.1
29	1	3.4	65.5
30	2	6.9	72.4
31	2	6.9	79.3
32	0	0.0	79.3
33	3	10.3	89.7
34	1	3.4	93.1
35	2	6.9	100.0





A20

Bather Belrose Boje, Inc. SPEEDPLOT Program

REET................ 0 Blk. State Route 76 (Trucks)
MITS................ East of I-15 to 20 MPH Curve

RECTION(S)..........Westbound
TE..................08/15/2002
ME..................3:00PM
STED SPEED LIMIT....20

50TH PERCENTILE SPEED..................24
85TH PERCENTILE SPEED..................25
10 MPH PACE SPEED..........20 through 29
PERCENT IN PACE SPEED..............100.0
PERCENT OVER PACE SPEED............. 0.0
PERCENT UNDER PACE SPEED............ 0.0
RANGE OF SPEEDS.................20 to 26
VEHICLES OBSERVED.................. 14
AVERAGE SPEED.......................23.2

EED	NO.	PCT.	CUM. PCT.
0	2	14.3	14.3
1	2	14.3	28.6
2	1	7.1	35.7
3	1	7.1	42.9
4	4	28.6	71.4
5	2	14.3	85.7
6	2	14.3	100.0

```
      +----+----+----+----+----+----+----+----+----+----+----+
  100       ********************************************100
    -                                                      -
   90                                                     90
C   -     *                                                -
U  80                                                     80
M   -                                                      -
   70    *                                                70
P   -                                                      -
E  60                                                     60
R   -                                                      -
C  50                                                     50
E   -   *                                                  -
N  40                                                     40
T   -  *                                                   -
S  30 *                                                   30
    -                                                      -
   20                                                     20
    -*                                                     -
   10                                                     10
    -                                                      -
    0                                                      0
     +----+----+----+----+----+----+----+----+----+----+----+
     20        30        40        50        60        70
     +----+----+----+----+----+----+----+----+----+----+----+
   20    *                                                20
    -    *                                                 -
    -    *                                                 -
    -    *                                                 -
    -    *                                                 -
P  15    *                                                15
E   -** ***                                                -
R   -** ***                                                -
C   -** ***                                                -
E   -** ***                                                -
N  10** ***                                               10
T   -** ***                                                -
S   -** ***                                                -
    -*******                                               -
    -*******                                               -
    5*******                                               5
    -*******                                               -
    -*******                                               -
    -*******                                               -
    -*******                                               -
     +----+----+----+----+----+----+----+----+----+----+----+
     20        30        40        50        60        70
                   SPEED IN MILES PER HOUR
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(A21)

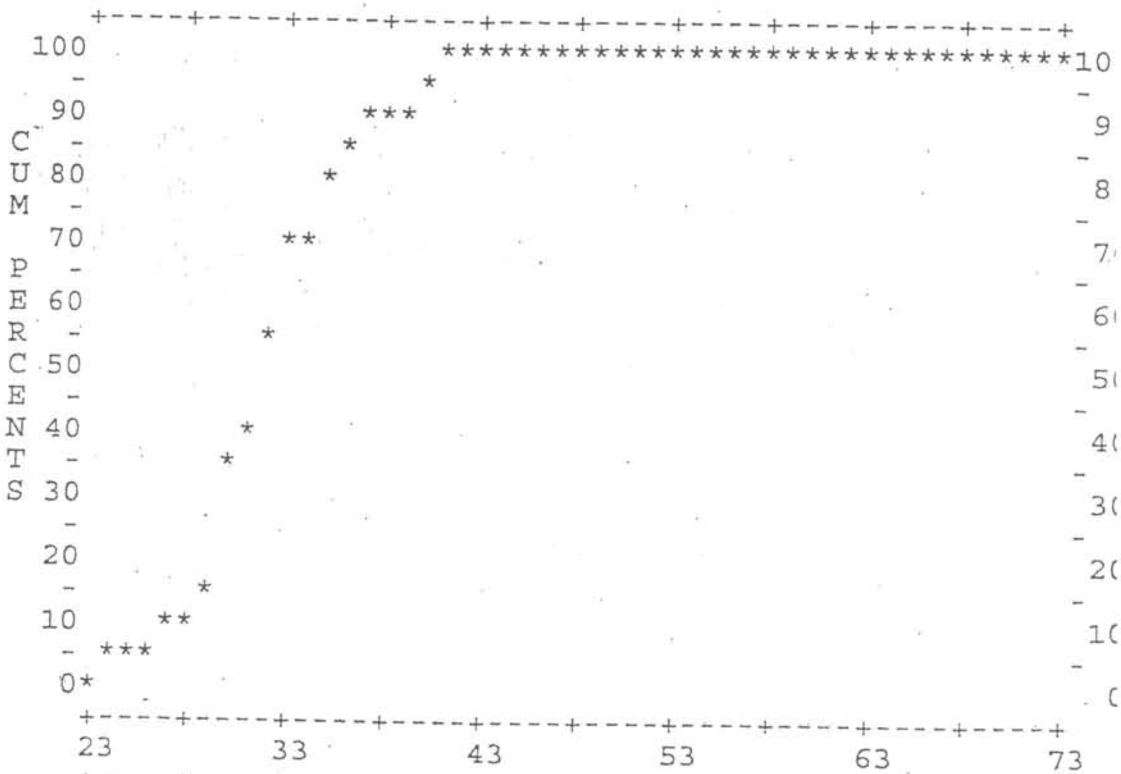
Barner Belrose Boje, Inc. SPEEDPLOT Program

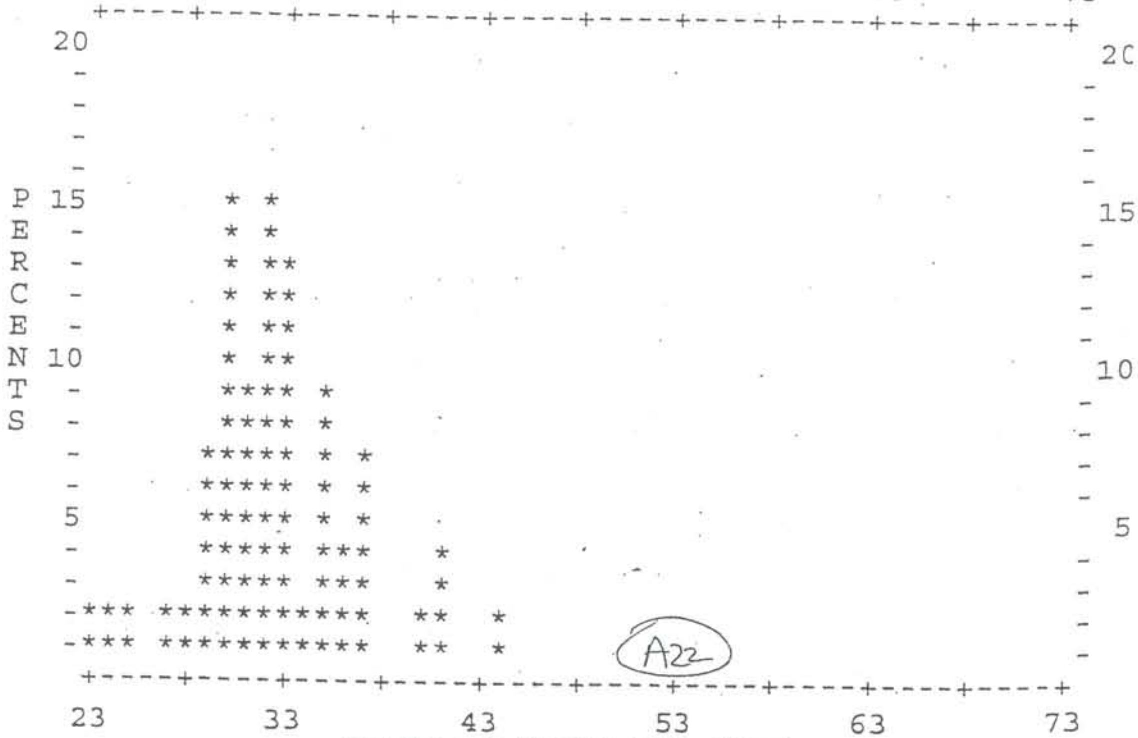
STREET................ 0 Blk. State Route 76 (Cars)
LIMITS................ East of I-15 to 20 MPH Curve

DIRECTION(S)..........Eastbound
DATE..................08/15/2002
TIME..................3:00PM
POSTED SPEED LIMIT....20

50TH PERCENTILE SPEED..................32
85TH PERCENTILE SPEED..................37
10 MPH PACE SPEED..........28 through 37
PERCENT IN PACE SPEED.............. 82.6
PERCENT OVER PACE SPEED............ 8.7
PERCENT UNDER PACE SPEED........... 8.7
RANGE OF SPEEDS................23 to 44
VEHICLES OBSERVED.................. 46
AVERAGE SPEED.....................32.5

SPEED	NO.	PCT.	CUM. PCT.
23	1	2.2	2.2
24	1	2.2	4.3
25	1	2.2	6.5
26	0	0.0	6.5
27	1	2.2	8.7
28	1	2.2	10.9
29	3	6.5	17.4
30	7	15.2	32.6
31	4	8.7	41.3
32	7	15.2	56.5
33	6	13.0	69.6
34	1	2.2	71.7
35	4	8.7	80.4
36	2	4.3	84.8
37	3	6.5	91.3
38	0	0.0	91.3
39	0	0.0	91.3
40	1	2.2	93.5
41	2	4.3	97.8
42	0	0.0	97.8
43	0	0.0	97.8
44	1	2.2	100.0





A22

SPEED IN MILES PER HOUR

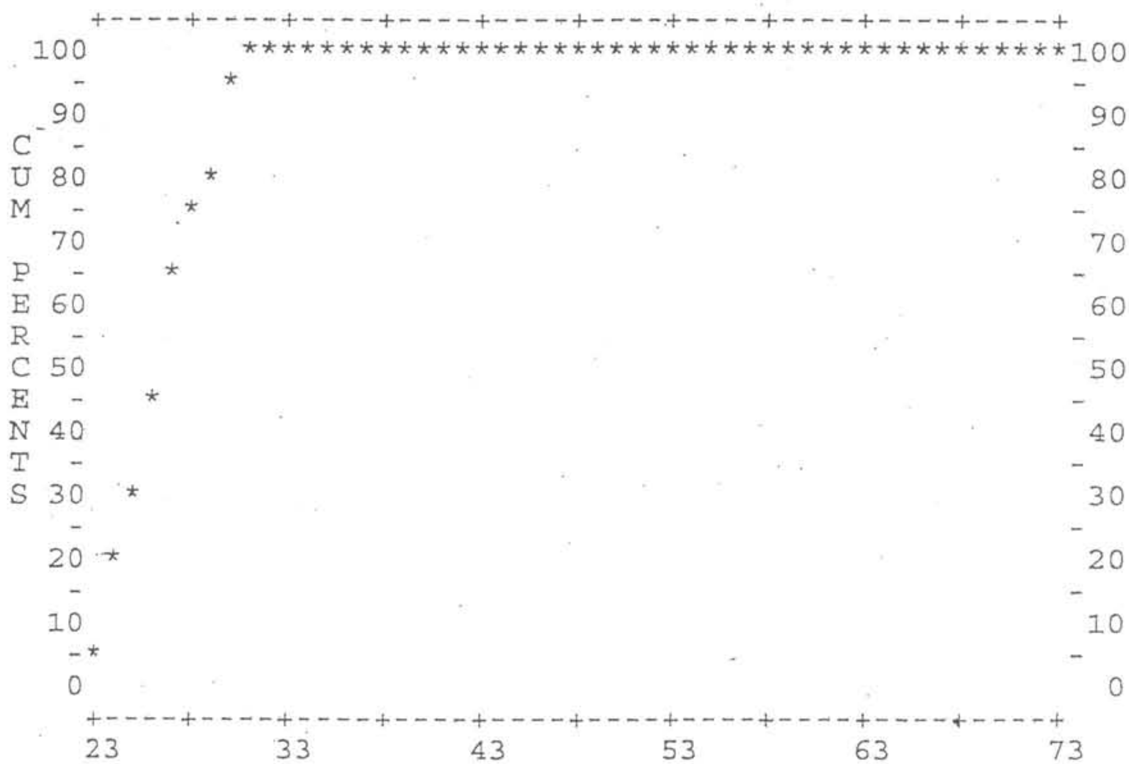
Bather Belrose Boje, Inc. SPEEDPLOT Program

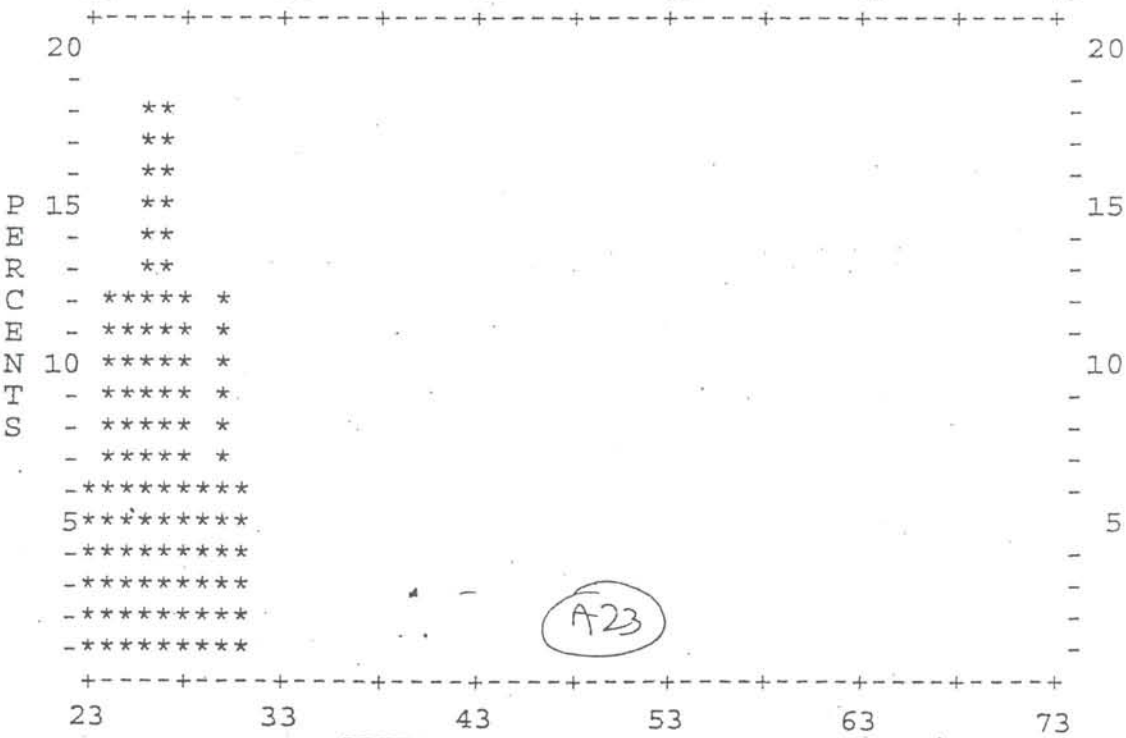
STREET................. 0 Blk. State Route 76 (Trucks)
LIMITS................. East of I-15 to 20 MPH Curve

DIRECTION(S)..........Eastbound
DATE..................08/15/2002
TIME..................3:00PM
POSTED SPEED LIMIT....20

50TH PERCENTILE SPEED.................27
85TH PERCENTILE SPEED.................30
10 MPH PACE SPEED..........23 through 32
PERCENT IN PACE SPEED..............100.0
PERCENT OVER PACE SPEED............. 0.0
PERCENT UNDER PACE SPEED............ 0.0
RANGE OF SPEEDS................23 to 31
VEHICLES OBSERVED.................... 17
AVERAGE SPEED.......................26.8

SPEED	NO.	PCT.	CUM. PCT.
23	1	5.9	5.9
24	2	11.8	17.6
25	2	11.8	29.4
26	3	17.6	47.1
27	3	17.6	64.7
28	2	11.8	76.5
29	1	5.9	82.4
30	2	11.8	94.1
31	1	5.9	100.0





A23

W/O CONSEC TO E/O PROJECT

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AXR330-CONTROLS                                TASAS SELECTIVE RECORD RETRIEVAL                          02-15-02          PAGE    1
REQ NO 4090                  SD  076    018.940/ 021.440  ALL ACCIDENTS                           06-30-96/07-01-01

         SUBMITTORS DISTRICT B1                                                    - MESSAGES -

         SUBMITTORS  NAME      CATHY

         ACCIDENTS SELECTED       77


   LOCATION CRITERIA  -

    DISTRICT 11      POSTMILE   FROM   018.940  TO   021.440             DATE RANGE  FROM  06-30-96  TO  07-01-01
    ROUTE    076             OR FROM            TO                 AND            OR FROM            TO
    COUNTY   SD              OR FROM            TO                                OR FROM            TO

   ACCIDENT AND HIGHWAY CRITERIA  -
     11  AN  508  ACC FILE TYPE                    EQ    H
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AXR330 ACC-DETAIL                                  TASAS SELECTIVE RECORD RETRIEVAL                             02-15-02          PAGE    2
REQ NO 4090                           SD  076   018.940/ 021.440  ALL ACCIDENTS                             06-30-96/07-01-01

     RTES        P LOC   <-----HIGHWAY-----> I S D     ACCIDENT       COMMON   P ENVIR R R T NO     P D V S PERSN O L O L O L O L OA M SD
       U         R POST   H A M B LANES RI F R O A     DATE   TIME  ACCIDENT C COND   C W O MTR    T I H I  K  I S O S O S O S O  F O  P
DIST NO F CO     E MILE   G C T A LT RT UO T L H Y MO DA YR HHMM    NUMBER  F W L S   C C VEH      R I          P C O C O C O C 12 V 12

 11  076   SD    018.990 U C B Z 01 01 RO H - E 1 05-27-01 0200 968512192 5 C D B H D B 03     D E 1 < 00 00 V2D V3D --- --- 6< N A<
                                                                                               D W 1 < 00 00 V1F --- --- --- N< B A<
                                                                                               D W 1 < 00 02 --- V1F --- --- N< B A<
 11  076   SD    019.000 U C B Z 01 01 RO H - E 7 12-09-00 1300 968509664 4 A A A H D E 01     C E 1 < 00 01 13H 44H --- --- N< C A<
 11  076   SD    019.050 U C B Z 01 01 RO H - E 7 05-19-01 0825 968510743 5 B A A H D E 01     A E 1 < 00 01 13H 24H 43H --- F< C A<
 11  076   SD    019.070 U C B Z 01 01 RO H - W 1 04-29-01 1320 968510135 6 A A A H D A 02     C W 1 D 01 00 V2D 44D --- --- 5< N G<
                                                                                               D E 1 C 00 00 V1F --- --- --- N< B A<
 11  076   SD    019.090 U C B Z 01 01 RO H - W 6 05-25-01 0700 968509664 6 A A A H D B 02     F W 1 < 00 00 V2D --- --- --- N< N A<
                                                                                               B E 1 < 00 00 V1F --- --- --- N< B A<
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 11  076   SD    019.090 U C B Z 01 01 RO H - W 7 06-13-98 1535 968512378 4 A A A H D E 01     C W 1 < 00 01 24B 43B 44B --- N< M A<
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 11  076   SD    019.160 U C B Z 01 01 RO H - E 3 11-25-97 1620 968512097 1 A A A H D F 01     A E 1 < 00 00 44H 13H --- --- 6< C B<
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 11  076   SD    019.340 U C B Z 01 01 RO H - E 1 02-04-01 1420 968512192 5 A A A H D F 01     C W 1 < 00 01 44F --- --- --- N< B A<
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 11  076   SD    019.370 U C B Z 01 01 RO H - W 7 11-06-99 1800 968512529 4 A D A H D E 01     A W 1 < 00 00 23H 44F --- --- N< C A<
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 11  076   SD    019.370 U C B Z 01 01 RO H - W 6 09-25-98 2255 968512190 1 B D A H D E 01     D W 1 < 00 00 24H 44H --- --- 5< C B<
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                                                                                               E E 1 < 00 00 V1F --- --- --- N< H A<
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                                                                                               A W 1 < 00 00 V1H --- --- --- N< B A<
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                                                                                               D E 1 < 00 00 V1F --- --- --- N< B A<
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AXR330 ACC-DETAIL                                  TASAS SELECTIVE RECORD RETRIEVAL                               02-15-02            PAGE    3
REQ NO 4090                          SD  076    018.940/ 021.440  ALL ACCIDENTS                               06-30-96/07-01-01

     RTES        P LOC    <-----HIGHWAY-----> I S D      ACCIDENT       COMMON    P ENVIR R R T NO       P D V S PERSN O L O L O L O L OA M SD
      U          R POST    H A M B LANES RI F R O A    DATE    TIME   ACCIDENT  C COND  C W O MTR       T I H I  K  I S O S O S O S O  F O  P
DIST NO F CO     E MILE    G C T A LT RT UO T L H Y MO DA YR HHMM    NUMBER   F W L S   C C VEH          R I            P C O C O C O C 12 V 12

 11  076  SD     019.690 U C B Z 01 01 RO H - W 1 05-20-01 2337 968511888 1 A D A H D E 01       D W 1 < 00 01 23H 44F --- --- 4< C B<
 11  076  SD     019.810 U C B Z 01 01 RO H - W 6 08-11-00 1000 968506506 6 A A A H D E 01       G W 1 < 00 00 23H --- --- --- N< C A<
 11  076  SD     019.820 U C B Z 01 01 RO H - E 7 08-09-97 2055 968513091 4 A D A H D E 01       D E 1 < 00 00 43H --- --- --- N< B G<
 11  076  SD     019.820 U C B Z 01 01 RO H - E 1 05-25-97 1415 968512378 1 A A A H D E 01       A E 1 < 00 00 11H --- --- --- 4< C B<
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                                                                                                 C W 1 < 00 00 --- V1B 44B --- N< C A<
 11  076  SD     019.920 U C B Z 01 01 RO H - E 1 11-30-97 0200 968513376 1 B D A H D E 01       A E 1 < 00 00 27H --- --- --- 6< C B<
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                                                                                                 A W 1 < 00 00 42F --- --- --- N< B A<
 11  076  SD     020.020 U C B Z 01 01 RO H - E 7 07-11-98 0200 968509633 4 A D A H D E 01       D E 1 < 00 00 43H 44H --- --- << C A<
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                                                                                                 F E 1 < 00 00 V1F --- --- --- N< B A<
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 11  076  SD     020.120 U C B Z 01 01 RO H - W 7 12-21-96 2140 968512663 6 A D A H D D 02       A W 1 < 00 00 V2D --- --- --- N< N A<
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 11  076  SD     020.300 U C B Z 01 01 RO H - W 7 09-09-00 0040 968511477 1 A D A H D E 01       D W 1 < 00 01 23H 44F --- --- 4< C B<
 11  076  SD     020.300 U C B Z 01 01 RO H - E 5 10-15-98 0800 968506650 5 B A A H D E 01       F E 1 < 00 00 26H 44H --- --- N< C A<
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                                                                                                 O < 1 < 00 00 24H --- --- --- << R <<
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                                                                                                 A E 1 < 00 03 V1F --- --- --- N< A A<
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                                                                                                 W < - < 00 00 V1- --- --- --- << < <<
 11  076  SD     020.850 U C B Z 01 01 RO H - W 1 07-13-97 0230 968512190 5 A D A H D E 01       J W 1 < 00 01 13B 44B 24B --- 6< C A<
 11  076  SD     020.890 U C B Z 01 01 RO H - E 6 06-13-97 2500 968512939 C B D A D D E 01       D E 1 < 00 01 24H 29H 44H --- J< C <F
 11  076  SD     020.900 U C B Z 01 01 RO H - E 2 01-08-01 0958 968509796 6 B A A H D B 02       F E 1 < 00 00 V2D 23B --- --- N< N A<
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 11  076  SD     020.910 U C B Z 01 01 RO H - W 1 12-12-99 2115 968512216 5 A D A H D F 01       C W 1 < 00 01 44F 24B --- --- N< B A<
 11  076  SD     020.920 U C B Z 01 01 RO H - W 2 01-08-01 1738 968512352 5 C D B H D B 02       D W 1 < 00 00 V2D 24B 43B --- 6< B A<
                                                                                                 A E 1 < 00 01 V1F 11H --- --- N< B A<
 11  076  SD     021.020 U C B Z 01 01 RO H - W 3 04-29-97 2349 968513091 4 A D A H D E 01       A W 1 < 00 00 23H 44G --- --- L< B A<
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AXR330 ACC-DETAIL                                TASAS SELECTIVE RECORD RETRIEVAL                           02-15-02           PAGE    4
REQ NO 4090                         SD  076   018.940/ 021.440  ALL ACCIDENTS                        06-30-96/07-01-01

    RTES       P LOC    <-----HIGHWAY-----> I S D     ACCIDENT        COMMON   P ENVIR R R T NO    P D V S PERSN O L O L O L O L OA M SD
      U        R POST    H A M B LANES RI F R O A    DATE    TIME   ACCIDENT C COND  C W O MTR    T I H I  K  I S O S O S O S O  F O  P
DIST NO F CO   E MILE    G C T A LT RT UO T L H Y MO DA YR HHMM     NUMBER   F W L S   C C VEH      R I         P C O C O C O C 12 V 12

 11  076  SD   021.040 U C B Z 01 01 RO H - W 7 01-10-98 2040 968512939 1 B D B H D E 01    D W 1 < 00 00 11H --- --- --- 4< C B<
 11  076  SD   021.060 U C B Z 01 01 RO H - W 1 05-07-00 0040 968511477 1 A D A H D E 01    D W 1 < 00 01 22H 24B --- --- 5< C B<
 11  076  SD   021.100 U C B Z 01 01 RO H - E 2 01-24-00 1315 968512190 6 B A A H D H 02    A W 1 < 00 00 99H V2D --- --- 4< C A<
                                                                                             G E 1 < 00 00 --- V1F --- --- N< B A<
 11  076  SD   021.110 U C B Z 01 01 RO H - W 2 02-22-99 1300 968512190 5 A A A < D E 01    G W 1 < 00 00 23H --- --- --- << B A<
 11  076  SD   021.190 U C B Z 01 01 RO H - W 5 11-27-97 1625 968512378 4 B A D F D E 01    D W 1 < 01 02 23H 44H --- --- N< R G<
 11  076  SD   021.210 U C B Z 01 01 RO H - W 1 09-28-97 1915 968512378 6 A D A H D B 02    C W 1 < 00 01 V2D 44D --- --- N< N A<
                                                                                             A E 1 < 00 00 V1F --- --- --- N< B A<
 11  076  SD   021.240 U C B Z 01 01 RO H - W 2 08-04-97 0615 968507304 5 A A A H D F 01    G W 1 < 00 00 44H --- --- --- 6< C A<
 11  076  SD   021.340 U C B Z 01 01 RO H - E 7 05-26-01 2350 968512352 1 F D B H D A 03    A E 1 < 00 01 V2D V3F --- --- 6< N B<
                                                                                             A W 1 < 00 04 V1F --- --- --- N< B A<
                                                                                             D E 1 < 00 00 --- V1F --- --- N< B A<
 11  076  SD   021.340 U C B Z 01 01 RO H - E 3 09-12-00 1742 968512352 4 A A A H D E 01    A E 1 < 00 01 27H --- --- --- 5< B G<
 11  076  SD   021.390 U C B Z 01 01 RO H - W 7 07-15-00 1805 968512614 6 A A A H D A 02    C W 1 < 00 00 V2D 44D --- --- N< N A<
                                                                                             A E 1 < 00 01 V1F --- --- --- N< B A<
 11  076  SD   021.400 U C B Z 01 01 RO H - W 3 10-28-97 0820 968510782 6 A A A H D E 01    H W 1 < 00 00 28H --- --- --- N< G A<
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- - - ACCIDENT SUMMARY - - -

TOTAL ACCIDENTS	FATAL	INJURY	PDO	PERSONS KILLED	PERSONS INJURED
77	2	32	43	2	49

WITHOUT DETAIL
0

MOTOR VEHICLES INVOLVED

NUMBER	PCT	CODE
53	68.8	1
21	27.2	2
2	2.5	3
1	1.2	> 3

LINES CODED

NUMBER	PCT	CODE
51	66.2	1
23	29.8	2
2	2.5	3
0	0.0	4
1	1.2	5
0	0.0	6
0	0.0	7
0	0.0	8
0	0.0	9

<--------HOUR OF DAY-------->

NUMBER	PCT	CODE
2	2.5	00- 12 MID.
0	0.0	01- 1 A.M.
4	5.1	02- 2 A.M.
0	0.0	03- 3 A.M.
0	0.0	04- 4 A.M.
1	1.2	05- 5 A.M.
1	1.2	06- 6 A.M.
2	2.5	07- 7 A.M.
3	3.8	08- 8 A.M.
2	2.5	09- 9 A.M.
6	7.7	10- 10 A.M.
4	5.1	11- 11 A.M.
4	5.1	12- 12 NOON
5	6.4	13- 1 P.M.
2	2.5	14- 2 P.M.
3	3.8	15- 3 P.M.
4	5.1	16- 4 P.M.
5	6.4	17- 5 P.M.
5	6.4	18- 6 P.M.
4	5.1	19- 7 P.M.
5	6.4	20- 8 P.M.
6	7.7	21- 9 P.M.
5	6.4	22- 10 P.M.
3	3.8	23- 11 P.M.
1	1.2	25- UNKNOWN

<-------ACCESS CONTROL---------->

NUMBER	PCT	CODE
77	100.0	C-CONVENTIONAL
0	0.0	E-EXPRESSWAY
0	0.0	F-FREEWAY
0	0.0	S-1-WAY CITY ST
0	0.0	--INVALID DATA
0	0.0	+-NO DATA

<-------SIDE OF HIGHWAY------>

NUMBER	PCT	CODE
0	0.0	N-NORTHBOUND
0	0.0	S-SOUTHBOUND
32	41.5	E-EASTBOUND
45	58.4	W-WESTBOUND

<-----------YEAR------->

NUMBER	PCT	CODE
0	0.0	1991
0	0.0	1992
0	0.0	1993
0	0.0	1994
0	0.0	1995
2	2.5	1996
18	23.3	1997
16	20.7	1998
8	10.3	1999
16	20.7	2000
17	22.0	2001

<-------------MONTH----------->

NUMBER	PCT	CODE
6	7.7	01-JANUARY
6	7.7	02-FEBRUARY
4	5.1	03-MARCH
8	10.3	04-APRIL
13	16.8	05-MAY
5	6.4	06-JUNE
8	10.3	07-JULY
8	10.3	08-AUGUST
6	7.7	09-SEPTEMBER
4	5.1	10-OCTOBER
5	6.4	11-NOVEMBER
4	5.1	12-DECEMBER

<---------DAY OF WEEK-------->

NUMBER	PCT	CODE
16	20.7	1-SUNDAY
10	12.9	2-MONDAY
15	19.4	3-TUESDAY
4	5.1	4-WEDNESDAY
3	3.8	5-THURSDAY
9	11.6	6-FRIDAY
20	25.9	7-SATURDAY

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- - - ACCIDENT SUMMARY - - -

PRIMARY COLLISION FACTOR

NUMBER	PCT	CODE
13	16.8	1-INFLUENCE ALCOHOL
0	0.0	2-FOLLOW TOO CLOSE
2	2.5	3-FAILURE TO YIELD
17	22.0	4-IMPROPER TURN
22	28.5	5-SPEEDING
21	27.2	6-OTHER VIOLATIONS
0	0.0	B-IMPROPER DRIVING
2	2.5	C-OTHER THAN DRIVER
0	0.0	D-UNKNOWN
0	0.0	E-FELL ASLEEP
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

TYPE OF COLLISION

NUMBER	PCT	CODE
6	7.7	A-HEAD-ON
9	11.6	B-SIDESWIPE
1	1.2	C-REAR END
2	2.5	D-BROADSIDE
41	53.2	E-HIT OBJECT
13	16.8	F-OVERTURN
0	0.0	G-AUTO-PEDESTRIAN
5	6.4	H-OTHER
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

ROADWAY CONDITION

NUMBER	PCT	CODE
0	0.0	A-HOLES, RUTS
1	1.2	B-LOOSE MATERIAL
0	0.0	C-OBSTRUCTION ON ROAD
2	2.5	D-CONSTRUCT-REPAIR-ZONE
0	0.0	E-REDUCED ROAD WIDTH
1	1.2	F-FLOODED
0	0.0	G-OTHER
72	93.5	H-NO UNUSUAL CONDITION
1	1.2	<-NOT STATED

WEATHER

NUMBER	PCT	CODE
55	71.4	A-CLEAR
17	22.0	B-CLOUDY
4	5.1	C-RAINING
0	0.0	D-SNOWING
0	0.0	E-FOG
1	1.2	F-OTHER
0	0.0	G-WIND
0	0.0	<-NOT STATED

LIGHTING

NUMBER	PCT	CODE
46	59.7	A-DAYLIGHT
0	0.0	B-DUSK/DAWN
0	0.0	C-DARK-STREET LIGHT
31	40.2	D-DARK-NO STREET LIGHT
0	0.0	E-DARK-INOPR STREET LIGHT
0	0.0	F-DARK-NOT STATED
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

ROAD SURFACE

NUMBER	PCT	CODE
67	87.0	A-DRY
8	10.3	B-WET
0	0.0	C-SNOWY, ICY
2	2.5	D-SLIPPERY
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

RIGHT OF WAY CONTROL

NUMBER	PCT	CODE
6	7.7	A-CONTROL FUNCTIONING
0	0.0	B-CONTROL NOT FUNCTIONING
0	0.0	C-CONTROLS OBSCURED
71	92.2	D-NO CONTROLS PRESENT
0	0.0	<-NOT STATED

HIGHWAY GROUP

NUMBER	PCT	CODE
0	0.0	R-IND. ALIGN-RIGHT
0	0.0	L-IND. ALIGN-LEFT
0	0.0	D-DIVIDED
77	100.0	U-UNDIVIDED

INTERSECTION OR RAMP ACCIDENT LOCATION

NUMBER	PCT	CODE
0	0.0	1-RAMP INTERSECTION (EXIT)
0	0.0	2-RAMP
0	0.0	3-RAMP ENTRY
0	0.0	4-RAMP AREA, INTERSECT STREET
0	0.0	5-IN INTERSECTION
0	0.0	6-OUTSIDE INTRSCT-NONSTATE RTE
77	100.0	--DOES NOT APPLY

A29

- - - PARTY SUMMARY - - -

<----------PARTY TYPE--------------->

NUMBER	PCT	CODE
34	44.1	A-PASNGR CAR/STA WAGON
1	1.2	B-PASNGR CAR W/TRALR
13	16.8	C-MOTORCYCLE
24	31.1	D-PICKUP/PANEL TRUCK
1	1.2	E-PICKUP/PANEL W/TRALR
4	5.1	F-TRUCK/TRUCK TRACTOR
11	14.2	G-TRK/TRACTOR & 1 TRALR
3	3.8	2-TRK/TRACTOR & 2 TRALR
0	0.0	3-TRK/TRACTOR & 3 TRALR
0	0.0	4-SINGLE UNIT TANKER
0	0.0	5-TRK/TRA & 1 TANK TRLR
0	0.0	6-TRK/TRA & 2 TANK TRLR
1	1.2	H-SCHOOL BUS
1	1.2	I-OTHER BUS
2	2.5	J-EMERGENCY VEHICLE
0	0.0	K-HIGHWAY CONST EQUIP
0	0.0	L-BICYCLE
0	0.0	M-OTHER-MOTOR VEH
0	0.0	N-OTHER-NON-MOTOR VEH
1	1.2	O-SPILLED LOADS
0	0.0	P-DISENGAGED TOW
0	0.0	Q-UNINVOLVED VEHICLE
0	0.0	R-MOPED
0	0.0	T-TRAIN
0	0.0	U-PEDESTRIAN
0	0.0	V-DISMOUNT PEDESTRIAN
1	1.2	W-ANIMAL - LIVESTOCK
0	0.0	X-ANIMAL - DEER
0	0.0	Z-ANIMAL - OTHER

<---MOVEMENT PRECEDING COLLISION--->

NUMBER	PCT	CODE
2	2.5	A-STOPPED
33	42.8	B-PROCEDED STRAIGHT
42	54.5	C-RAN OFF ROAD
0	0.0	D-MAKING RIGHT TURN
1	1.2	E-MAKING LEFT TURN
0	0.0	F-MAKING U TURN
1	1.2	G-BACKING
1	1.2	H-SLOWING, STOPPING
1	1.2	I-PASS OTHER VEHICLE
0	0.0	J-CHANGING LANES
0	0.0	K-PARKING
1	1.2	L-ENTER FROM SHLDR
1	1.2	M-OTHER UNSAFE TURN
14	18.1	N-CROSS INTO OPP LN
0	0.0	O-PARKED
0	0.0	P-MERGING
0	0.0	Q-TRVL WRONG WAY
2	2.5	R-OTHER
1	1.2	<-NOT STATED
		PEDESTRIAN
0	0.0	2-XING XWALK-INTRST
0	0.0	3-XING XWALK-NOT INTR
0	0.0	4-XING NOT XWALK
0	0.0	5-ROADWAY-INCL SHLDR
0	0.0	6-NOT IN ROADWAY
0	0.0	7-APRH-LEAVE SCHL BUS
0	0.0	-INVALID CODES

<--------------OTHER ASSOCIATED FACTOR------------------>

# 1	PCT	# 2	PCT	CODE
0	0.0	0	0.0	1-INFLUENCE ALCOHOL
0	0.0	0	0.0	2-FOLLOW TOO CLOSE
0	0.0	0	0.0	3-FAILURE TO YIELD
7	9.0	0	0.0	4-IMPROPER TURN
6	7.7	0	0.0	5-SPEEDING
9	11.6	0	0.0	6-OTHER VIOLATIONS
0	0.0	0	0.0	A-CELL PHONE* (INATTN)
0	0.0	0	0.0	B-ELECTRONIC EQUIP* (INATTN)
0	0.0	0	0.0	C-RADIO/CD/HEADPHN* (INATTN)
0	0.0	0	0.0	D-SMOKING* (INATTN)
0	0.0	0	0.0	E-VISION OBSCUREMENT
1	1.2	0	0.0	F-INATTENTION - OTHER
0	0.0	0	0.0	G-STOP & GO TRAFFIC
0	0.0	0	0.0	H-ENTER/LEAVE RAMP
0	0.0	0	0.0	I-PREVIOUS COLLISION
2	2.5	0	0.0	J-UNFAMILIAR WITH ROAD
0	0.0	0	0.0	K-DEFECT VEHICLE EQUIP
1	1.2	0	0.0	L-UNINVOLVED VEHICLE
0	0.0	0	0.0	M-OTHER
55	71.4	0	0.0	N-NONE APPARENT
0	0.0	0	0.0	P-WIND
0	0.0	0	0.0	R-RAMP ACCIDENT
0	0.0	0	0.0	S-RUNAWAY VEHICLE
0	0.0	0	0.0	T-EATING* (INATTN)
0	0.0	0	0.0	U-CHILDREN* (INATTN)
0	0.0	0	0.0	V-ANIMALS* (INATTN)
0	0.0	0	0.0	W-PERSONAL HYGIENE* (INATTN)
0	0.0	0	0.0	X-READING* (INATTN)
5	6.4	77	100.0	<-NOT STATED
0	0.0	0	0.0	--DOES NOT APPLY

*INATTENTION CODES EFF. 01-01-01

<-----DIRECTION OF TRAVEL------>

NUMBER	PCT	CODE
0	0.0	N-N, NE, NW BOUND
1	1.2	S-S, SE, SW BOUND
40	51.9	E-EASTBOUND
57	74.0	W-WESTBOUND
3	3.8	<-NOT STATED
0	0.0	--DOES NOT APPLY

<----------SPECIAL INFORMATION---------->

NUMBER	PCT	CODE
0	0.0	A-HAZARDOUS MATERIALS
0	0.0	B-CELL PHONE IN USE*
4	5.1	C-CELL PHONE NOT IN USE*
3	3.8	D-CELL PHONE NONE/UNKNOWN*
72	93.5	<-NOT STATED
0	0.0	--DOES NOT APPLY
0	0.0	-INVALID CODES

*SPECIAL INFORMATION CODES EFF: 04-01-01

A30

- - - PARTY SUMMARY - - -

<------------------OBJECT STRUCK---------------------------->

PRIMARY NUMBER	PRIMARY PCT	OTHERS NUMBER	OTHERS PCT	
0	0.0	0	0.0	01-SIDE OF BRIDGE RAILING
0	0.0	0	0.0	02-END OF BRIDGE RAILING
0	0.0	0	0.0	03-PIER,COLUMN,ABUTMENT
0	0.0	0	0.0	04-BOTTOM OF STRUCTURE
0	0.0	0	0.0	05 BRIDGE END POST IN GORE
0	0.0	0	0.0	06-END OF GUARD RAIL
0	0.0	0	0.0	07-BRIDGE APPROACH GRD RAIL
0	0.0	0	0.0	10-LIGHT OR SIGNAL POLE
2	2.5	1	1.2	11-UTILITY POLE
0	0.0	0	0.0	12-POLE (TYPE NOT STATED)
4	5.1	1	1.2	13-TRAFFIC SIGN/SIGN POST
0	0.0	0	0.0	14-OTHER SIGNS NOT TRAFFIC
0	0.0	0	0.0	15-GUARDRAIL
0	0.0	0	0.0	16-MEDIAN BARRIER
0	0.0	0	0.0	17-WALL(EXCEPT SOUND WALL)
0	0.0	0	0.0	18-DIKE OR CURB
0	0.0	0	0.0	19-TRAFFIC ISLAND
0	0.0	0	0.0	20-RAISED BARS
0	0.0	0	0.0	21-CONCRETE OBJ(HDWL,D.I.)
1	1.2	0	0.0	22-GUIDEPOST,CULVERT,PM
18	23.3	3	3.8	23-CUT SLOPE OR EMBANKMENT
7	9.0	6	7.7	24-OVER EMBANKMENT
0	0.0	0	0.0	25-IN WATER
2	2.5	0	0.0	26-DRAINAGE DITCH
3	3.8	0	0.0	27-FENCE
1	1.2	1	1.2	28-TREES
0	0.0	1	1.2	29-PLANTS
0	0.0	0	0.0	30-SOUND WALL
0	0.0	0	0.0	40-NATURAL MATRL ON ROAD
0	0.0	0	0.0	41-TEMP BARRICADES, CONES
1	1.2	0	0.0	42-OTHER OBJECT ON ROAD
3	3.8	4	5.1	43-OTHER OBJECT OFF ROAD
13	16.8	26	33.7	44-OVERTURNED
0	0.0	0	0.0	45-CRASH CUSHION(SAND)
0	0.0	0	0.0	46-CRASH CUSHION(OTHER)
0	0.0	0	0.0	51-CALL BOX
0	0.0	0	0.0	98-UNKNOWN OBJECT STRUCK
3	3.8	0	0.0	99-NO OBJECT INVOLVED
19	24.6	8	10.3	V1 THRU V9-VEHICLE 1 TO 9
0	0.0	0	0.0	<<-NOT STATED
10	12.9	77	100.0	---DOES NOT APPLY
0	0.0	0	0.0	-INVALID CODES

<-----------------LOCATION OF COLLISION-------------------------->

PRIMARY NUMBER	PRIMARY PCT	OTHERS NUMBER	OTHERS PCT	CODE
0	0.0	0	0.0	A-BEYOND MEDIAN OR STRIPE-LFT
7	9.0	8	10.3	B-BEYOND SHLDER DRIVERS LEFT
0	0.0	0	0.0	C-LEFT SHOULDER AREA
16	20.7	9	11.6	D-LEFT LANE
0	0.0	0	0.0	E-INTERIOR LANES
28	36.3	13	16.8	F-RIGHT LANE
0	0.0	1	1.2	G-RIGHT SHOULDER AREA
43	55.8	17	22.0	H-BEYOND SHLDER DRIVERS RIGHT
0	0.0	0	0.0	I-GORE AREA
0	0.0	0	0.0	J-OTHER
0	0.0	0	0.0	V-HOV LANE(S)
0	0.0	0	0.0	W-HOV LANE BUFFER AREA
0	0.0	0	0.0	<-NOT STATED
11	14.2	77	100.0	--DOES NOT APPLY
0	0.0	0	0.0	-INVALID CODES

<-----SOBRIETY-----------DRUG/PHYSICAL----------------------->

SOBRIETY NUMBER	SOBRIETY PCT	DRUG/PHYSICAL NUMBER	DRUG/PHYSICAL PCT	CODE
61	79.2	0	0.0	A-HAD NOT BEEN DRINKING
13	16.8	0	0.0	B-HBD - UNDER INFLUENCE
2	2.5	0	0.0	C-HBD - NOT UNDER INFLUENCE
0	0.0	0	0.0	D-HBD - IMPAIRMENT UNKNOWN
0	0.0	0	0.0	E-UNDER DRUG INFLUENCE
0	0.0	1	1.2	F-OTHER PHYSICAL IMPAIRMENT
4	5.1	0	0.0	G-IMPAIRMENT NOT KNOWN
0	0.0	0	0.0	H-NOT APPLICABLE
0	0.0	0	0.0	I-FATIGUE
3	3.8	76	98.7	<-NOT STATED
0	0.0	0	0.0	--DOES NOT APPLY
		0	0.0	-INVALID CODES

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PANKEY TO WEST OF COUSER

SUBMITTORS DISTRICT B1

- MESSAGES -

SUBMITTORS NAME CATHY

ACCIDENTS SELECTED 25

LOCATION CRITERIA -

DISTRICT	11	POSTMILE FROM	017.866	TO	018.939	AND	DATE RANGE FROM	06-30-96	TO	07-01-01
ROUTE	076	OR FROM		TO			OR FROM		TO	
COUNTY	SD	OR FROM		TO			OR FROM		TO	

ACCIDENT AND HIGHWAY CRITERIA - NONE

A32

```
     RTES       P LOC    <-----HIGHWAY-----> I S D     ACCIDENT        COMMON   P ENVIR R R T NO     P D V S PERSN O L O L O L O L OA M SD
       U        R POST    H A M B LANES RI F R O A    DATE     TIME  ACCIDENT  C COND  C W O MTR    T I H I  K  I S O S O S O S O  F O  P
DIST NO F CO    E MILE    G C T A LT RT UO T L H Y MO DA YR HHMM    NUMBER   F W L S    C C VEH       R I          P C O C O C O C 12 V 12

 11  076  SD   017.866 U C B Z 01 01 RO I 5 W 7 12-23-00 1745 968512529 4 A D A H D D 02     D E 1 < 00 00 V2D --- --- --- N< M A<
                                                                                             A E 1 < 00 01 V1D --- --- --- N< B A<
 11  076  SD   017.866 U C B Z 01 01 RO I 5 E 6 10-11-96 1920 968513091 6 A D A H A D 02     D N 2 < 00 02 V2F 44F --- --- J< B A<
                                                                                             G E 1 < 00 00 V1F --- --- --- N< B A<
 11  076  SD   017.880 U C B Z 01 01 RO H - E 5 06-17-99 0935 968507615 3 A A A H A D 02     E E 1 < 00 00 V2F --- --- --- N< B A<
                                                                                             D E 2 < 00 00 V1D --- --- --- N< E A<
 11  076  SD   017.980 U C B Z 01 01 RO H - E 5 08-03-00 0720 968506506 6 A A A H A E 01     A E 1 < 00 00 24H 44H 27H --- N< C A<
 11  076  SD   018.010 U C B Z 01 01 RO H - E 4 06-13-01 1420 968513165 1 A A A H D E 01     A E 1 < 01 00 13H 24H 44H 27H N< M D<
 11  076  SD   018.020 U C B Z 01 01 RO H - E 3 11-09-99 1345 968506650 6 A A A H D F 01     A E 1 < 00 00 44H 27H --- --- N< C A<
 11  076  SD   018.270 U C B Z 01 01 RO H - E 7 04-17-99 0030 968510782 1 A D A H A F 01     D E 1 < 01 00 44H 24H --- --- N< C B<
 11  076  SD   018.270 U C B Z 01 01 RO H - E 3 09-02-97 1950 968512375 4 A D A H D E 01     A E 1 < 00 00 23B 44B --- --- N< C A<
 11  076  SD   018.300 U C B Z 01 01 RO H - E 6 12-31-99 2020 968511138 5 C D B H D E 01     E E 1 < 00 00 24H 44H --- --- L< C A<
 11  076  SD   018.300 U C B Z 01 01 RO H - E 6 08-13-99 1315 968512111 4 A A A H D F 01     C E 1 < 00 02 44F 13H --- --- N< M A<
 11  076  SD   018.300 U C B Z 01 01 RO H - E 2 12-09-96 1630 968511430 5 C A B H D E 01     A E 1 < 00 00 23B --- --- --- N< C A<
 11  076  SD   018.350 U C B Z 01 01 RO H - E 7 11-30-96 1955 968511325 1 A D A H D E 01     A E 1 < 00 01 13H --- --- --- 6< C B<
 11  076  SD   018.370 U C B Z 01 01 RO H - E 2 06-16-97 1700 968512378 5 A A A D D E 01     J E 1 < 00 00 24H 28H --- --- N< B A<
 11  076  SD   018.370 U C B Z 01 01 RO H - W 3 10-15-96 1430 968513091 6 A A A H D E 01     G W 1 < 00 00 11H 44H --- --- N< B A<
 11  076  SD   018.430 U C B Z 01 01 RO H - E 7 10-04-97 0230 968511325 E A D A H D E 01     D E 1 < 00 00 23B 44D --- --- 6< C AI
 11  076  SD   018.510 U C B Z 01 01 RO H - E 5 12-25-97 1600 968512375 4 A A A H D E 01     A E 1 < 00 00 23B 43B --- --- L< C A<
 11  076  SD   018.520 U C B Z 01 01 RO H - W 5 10-30-97 0430 968513376 4 A D A H D E 01     A W 1 < 00 00 26H 23H --- --- 5< M A<
 11  076  SD   018.590 U C B Z 01 01 RO H - W 3 01-30-01 1320 968512663 6 A A A H D A 02     A W 1 < 00 00 V2D --- --- --- N< I G<
                                                                                             A E 1 < 00 01 V1F --- --- --- N< B A<
 11  076  SD   018.600 U C B Z 01 01 RO H - E 7 05-26-01 2150 968510522 6 C D B H D A 02     A E 1 D 00 02 V2D --- --- --- 5< N A<
                                                                                             A W 1 D 00 02 V1F --- --- --- N< B A<
 11  076  SD   018.600 U C B Z 01 01 RO H - W 2 04-28-97 0540 968512466 5 A B A H D F 02     2 W 1 < 00 01 44F V2D --- --- N< B A<
                                                                                             D E 1 < 00 00 --- V1F --- --- N< B A<
 11  076  SD   018.600 U C B Z 01 01 RO H - W 1 10-20-96 1450 968512663 6 A A A H D E 02     A E 1 < 00 00 24H --- --- --- N< B A<
                                                                                             C W 1 < 00 00 --- --- --- --- N< B A<
 11  076  SD   018.700 U C B Z 01 01 RO H - E 7 02-10-01 1520 968512192 5 B A B H D D 02     E E 1 < 00 00 V2D --- --- --- N< B A<
                                                                                             A W 1 < 00 01 V1F --- --- --- N< B A<
 11  076  SD   018.800 U C B Z 01 01 RO H - W 6 06-15-01 0815 968511325 6 A A A H D E 01     A W 1 < 00 01 26H --- --- --- N< C A<
 11  076  SD   018.800 U C B Z 01 01 RO H - W 4 08-16-00 2045 968507304 5 A D A H D E 01     A W 1 < 00 00 23H 44H --- --- N< C A<
 11  076  SD   018.800 U C B Z 01 01 RO H - W 7 02-22-97 1830 968512466 6 A D A H D E 01     J W 1 < 00 01 23H --- --- --- N< C A<
```

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- - - ACCIDENT SUMMARY - - -

TOTAL ACCIDENTS	FATAL	INJURY	PDO	PERSONS KILLED	PERSONS INJURED
25	2	10	13	2	15

WITHOUT DETAIL
0

MOTOR VEHICLES INVOLVED

NUMBER	PCT	CODE
17	68.0	1
8	32.0	2
0	0.0	3
0	0.0	> 3

LINES CODED

NUMBER	PCT	CODE
17	68.0	1
8	32.0	2
0	0.0	3
0	0.0	4
0	0.0	5
0	0.0	6
0	0.0	7
0	0.0	8
0	0.0	9

<--------HOUR OF DAY-------->

NUMBER	PCT	CODE
1	4.0	00- 12 MID.
0	0.0	01- 1 A.M.
1	4.0	02- 2 A.M.
0	0.0	03- 3 A.M.
1	4.0	04- 4 A.M.
1	4.0	05- 5 A.M.
0	0.0	06- 6 A.M.
1	4.0	07- 7 A.M.
1	4.0	08- 8 A.M.
1	4.0	09- 9 A.M.
0	0.0	10- 10 A.M.
0	0.0	11- 11 A.M.
0	0.0	12- 12 NOON
3	12.0	13- 1 P.M.
3	12.0	14- 2 P.M.
1	4.0	15- 3 P.M.
2	8.0	16- 4 P.M.
2	8.0	17- 5 P.M.
1	4.0	18- 6 P.M.
3	12.0	19- 7 P.M.
2	8.0	20- 8 P.M.
1	4.0	21- 9 P.M.
0	0.0	22- 10 P.M.
0	0.0	23- 11 P.M.
0	0.0	25- UNKNOWN

<-------ACCESS CONTROL---------->

NUMBER	PCT	CODE
25	100.0	C-CONVENTIONAL
0	0.0	E-EXPRESSWAY
0	0.0	F-FREEWAY
0	0.0	S-1-WAY CITY ST
0	0.0	'--INVALID DATA
0	0.0	+-NO DATA

<-------SIDE OF HIGHWAY------>

NUMBER	PCT	CODE
0	0.0	N-NORTHBOUND
0	0.0	S-SOUTHBOUND
16	64.0	E-EASTBOUND
9	36.0	W-WESTBOUND

<-----------YEAR------->

NUMBER	PCT	CODE
0	0.0	1991
0	0.0	1992
0	0.0	1993
0	0.0	1994
0	0.0	1995
5	20.0	1996
7	28.0	1997
0	0.0	1998
5	20.0	1999
3	12.0	2000
5	20.0	2001

<-------------MONTH----------->

NUMBER	PCT	CODE
1	4.0	01-JANUARY
2	8.0	02-FEBRUARY
0	0.0	03-MARCH
2	8.0	04-APRIL
1	4.0	05-MAY
4	16.0	06-JUNE
0	0.0	07-JULY
3	12.0	08-AUGUST
1	4.0	09-SEPTEMBER
5	20.0	10-OCTOBER
2	8.0	11-NOVEMBER
4	16.0	12-DECEMBER

<---------DAY OF WEEK-------->

NUMBER	PCT	CODE
1	4.0	1-SUNDAY
3	12.0	2-MONDAY
4	16.0	3-TUESDAY
2	8.0	4-WEDNESDAY
4	16.0	5-THURSDAY
4	16.0	6-FRIDAY
7	28.0	7-SATURDAY

- - - ACCIDENT SUMMARY - - -

PRIMARY COLLISION FACTOR

NUMBER	PCT	CODE
3	12.0	1-INFLUENCE ALCOHOL
0	0.0	2-FOLLOW TOO CLOSE
1	4.0	3-FAILURE TO YIELD
5	20.0	4-IMPROPER TURN
6	24.0	5-SPEEDING
9	36.0	6-OTHER VIOLATIONS
0	0.0	B-IMPROPER DRIVING
0	0.0	C-OTHER THAN DRIVER
0	0.0	D-UNKNOWN
1	4.0	E-FELL ASLEEP
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

TYPE OF COLLISION

NUMBER	PCT	CODE
2	8.0	A-HEAD-ON
0	0.0	B-SIDESWIPE
0	0.0	C-REAR END
4	16.0	D-BROADSIDE
15	60.0	E-HIT OBJECT
4	16.0	F-OVERTURN
0	0.0	G-AUTO-PEDESTRIAN
0	0.0	H-OTHER
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

ROADWAY CONDITION

NUMBER	PCT	CODE
0	0.0	A-HOLES, RUTS
0	0.0	B-LOOSE MATERIAL
0	0.0	C-OBSTRUCTION ON ROAD
1	4.0	D-CONSTRUCT-REPAIR-ZONE
0	0.0	E-REDUCED ROAD WIDTH
0	0.0	F-FLOODED
0	0.0	G-OTHER
24	96.0	H-NO UNUSUAL CONDITION
0	0.0	<-NOT STATED

WEATHER

NUMBER	PCT	CODE
21	84.0	A-CLEAR
1	4.0	B-CLOUDY
3	12.0	C-RAINING
0	0.0	D-SNOWING
0	0.0	E-FOG
0	0.0	F-OTHER
0	0.0	G-WIND
0	0.0	<-NOT STATED

LIGHTING

NUMBER	PCT	CODE
13	52.0	A-DAYLIGHT
1	4.0	B-DUSK/DAWN
0	0.0	C-DARK-STREET LIGHT
11	44.0	D-DARK-NO STREET LIGHT
0	0.0	E-DARK-INOPR STREET LIGHT
0	0.0	F-DARK-NOT STATED
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

ROAD SURFACE

NUMBER	PCT	CODE
21	84.0	A-DRY
4	16.0	B-WET
0	0.0	C-SNOWY, ICY
0	0.0	D-SLIPPERY
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

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RIGHT OF WAY CONTROL

NUMBER	PCT	CODE
4	16.0	A-CONTROL FUNCTIONING
0	0.0	B-CONTROL NOT FUNCTIONING
0	0.0	C-CONTROLS OBSCURED
21	84.0	D-NO CONTROLS PRESENT
0	0.0	<-NOT STATED

HIGHWAY GROUP

NUMBER	PCT	CODE
0	0.0	R-IND. ALIGN-RIGHT
0	0.0	L-IND. ALIGN-LEFT
0	0.0	D-DIVIDED
25	100.0	U-UNDIVIDED

INTERSECTION OR RAMP ACCIDENT LOCATION

NUMBER	PCT	CODE
0	0.0	1-RAMP INTERSECTION (EXIT)
0	0.0	2-RAMP
0	0.0	3-RAMP ENTRY
0	0.0	4-RAMP AREA, INTERSECT STREET
2	8.0	5-IN INTERSECTION
0	0.0	6-OUTSIDE INTRSCT-NONSTATE RTE
23	92.0	--DOES NOT APPLY

- - - PARTY SUMMARY - - -

PARTY TYPE

NUMBER	PCT	CODE
15	60.0	A-PASNGR CAR/STA WAGON
0	0.0	B-PASNGR CAR W/TRALR
2	8.0	C-MOTORCYCLE
6	24.0	D-PICKUP/PANEL TRUCK
3	12.0	E-PICKUP/PANEL W/TRALR
0	0.0	F-TRUCK/TRUCK TRACTOR
2	8.0	G-TRK/TRACTOR & 1 TRALR
1	4.0	2-TRK/TRACTOR & 2 TRALR
0	0.0	3-TRK/TRACTOR & 3 TRALR
0	0.0	4-SINGLE UNIT TANKER
0	0.0	5-TRK/TRA & 1 TANK TRLR
0	0.0	6-TRK/TRA & 2 TANK TRLR
0	0.0	H-SCHOOL BUS
0	0.0	I-OTHER BUS
2	8.0	J-EMERGENCY VEHICLE
0	0.0	K-HIGHWAY CONST EQUIP
0	0.0	L-BICYCLE
0	0.0	M-OTHER-MOTOR VEH
0	0.0	N-OTHER-NON-MOTOR VEH
0	0.0	O-SPILLED LOADS
0	0.0	P-DISENGAGED TOW
0	0.0	Q-UNINVOLVED VEHICLE
0	0.0	R-MOPED
0	0.0	T-TRAIN
0	0.0	U-PEDESTRIAN
0	0.0	V-DISMOUNT PEDESTRIAN
0	0.0	W-ANIMAL - LIVESTOCK
0	0.0	X-ANIMAL - DEER
0	0.0	Z-ANIMAL - OTHER

MOVEMENT PRECEDING COLLISION

NUMBER	PCT	CODE
0	0.0	A-STOPPED
10	40.0	B-PROCEDED STRAIGHT
12	48.0	C-RAN OFF ROAD
0	0.0	D-MAKING RIGHT TURN
1	4.0	E-MAKING LEFT TURN
0	0.0	F-MAKING U TURN
0	0.0	G-BACKING
0	0.0	H-SLOWING, STOPPING
1	4.0	I-PASS OTHER VEHICLE
0	0.0	J-CHANGING LANES
0	0.0	K-PARKING
0	0.0	L-ENTER FROM SHLDR
4	16.0	M-OTHER UNSAFE TURN
1	4.0	N-CROSS INTO OPP LN
0	0.0	O-PARKED
0	0.0	P-MERGING
0	0.0	Q-TRVL WRONG WAY
0	0.0	R-OTHER
0	0.0	<-NOT STATED
		PEDESTRIAN
0	0.0	2-XING XWALK-INTRST
0	0.0	3-XING XWALK-NOT INTR
0	0.0	4-XING NOT XWALK
0	0.0	5-ROADWAY-INCL SHLDR
0	0.0	6-NOT IN ROADWAY
0	0.0	7-APRH-LEAVE SCHL BUS
0	0.0	-INVALID CODES

OTHER ASSOCIATED FACTOR

# 1	PCT	# 2	PCT	CODE
0	0.0	0	0.0	1-INFLUENCE ALCOHOL
0	0.0	0	0.0	2-FOLLOW TOO CLOSE
0	0.0	0	0.0	3-FAILURE TO YIELD
0	0.0	0	0.0	4-IMPROPER TURN
2	8.0	0	0.0	5-SPEEDING
2	8.0	0	0.0	6-OTHER VIOLATIONS
0	0.0	0	0.0	A-CELL PHONE* (INATTN)
0	0.0	0	0.0	B-ELECTRONIC EQUIP* (INATTN)
0	0.0	0	0.0	C-RADIO/CD/HEADPHN* (INATTN)
0	0.0	0	0.0	D-SMOKING* (INATTN)
0	0.0	0	0.0	E-VISION OBSCUREMENT
0	0.0	0	0.0	F-INATTENTION - OTHER
0	0.0	0	0.0	G-STOP & GO TRAFFIC
0	0.0	0	0.0	H-ENTER/LEAVE RAMP
0	0.0	0	0.0	I-PREVIOUS COLLISION
1	4.0	0	0.0	J-UNFAMILIAR WITH ROAD
0	0.0	0	0.0	K-DEFECT VEHICLE EQUIP
2	8.0	0	0.0	L-UNINVOLVED VEHICLE
0	0.0	0	0.0	M-OTHER
20	80.0	0	0.0	N-NONE APPARENT
0	0.0	0	0.0	P-WIND
0	0.0	0	0.0	R-RAMP ACCIDENT
0	0.0	0	0.0	S-RUNAWAY VEHICLE
0	0.0	0	0.0	T-EATING* (INATTN)
0	0.0	0	0.0	U-CHILDREN* (INATTN)
0	0.0	0	0.0	V-ANIMALS* (INATTN)
0	0.0	0	0.0	W-PERSONAL HYGIENE* (INATTN)
0	0.0	0	0.0	X-READING* (INATTN)
0	0.0	25	100.0	<-NOT STATED
0	0.0	0	0.0	--DOES NOT APPLY

*INATTENTION CODES EFF. 01-01-01

DIRECTION OF TRAVEL

NUMBER	PCT	CODE
1	4.0	N-N, NE, NW BOUND
0	0.0	S-S, SE, SW BOUND
20	80.0	E-EASTBOUND
10	40.0	W-WESTBOUND
0	0.0	<-NOT STATED
0	0.0	--DOES NOT APPLY

SPECIAL INFORMATION

NUMBER	PCT	CODE
0	0.0	A-HAZARDOUS MATERIALS
0	0.0	B-CELL PHONE IN USE*
0	0.0	C-CELL PHONE NOT IN USE*
1	4.0	D-CELL PHONE NONE/UNKNOWN*
24	96.0	<-NOT STATED
0	0.0	--DOES NOT APPLY
0	0.0	-INVALID CODES

*SPECIAL INFORMATION CODES EFF. 04-01-01

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- - - PARTY SUMMARY - - -

<------------------OBJECT STRUCK---------------------------->

PRIMARY NUMBER	PRIMARY PCT	OTHERS NUMBER	OTHERS PCT	
0	0.0	0	0.0	01-SIDE OF BRIDGE RAILING
0	0.0	0	0.0	02-END OF BRIDGE RAILING
0	0.0	0	0.0	03-PIER,COLUMN,ABUTMENT
0	0.0	0	0.0	04-BOTTOM OF STRUCTURE
0	0.0	0	0.0	05 BRIDGE END POST IN GORE
0	0.0	0	0.0	06-END OF GUARD RAIL
0	0.0	0	0.0	07-BRIDGE APPROACH GRD RAIL
0	0.0	0	0.0	10-LIGHT OR SIGNAL POLE
1	4.0	0	0.0	11-UTILITY POLE
0	0.0	0	0.0	12-POLE (TYPE NOT STATED)
2	8.0	1	4.0	13-TRAFFIC SIGN/SIGN POST
0	0.0	0	0.0	14-OTHER SIGNS NOT TRAFFIC
0	0.0	0	0.0	15-GUARDRAIL
0	0.0	0	0.0	16-MEDIAN BARRIER
0	0.0	0	0.0	17-WALL(EXCEPT SOUND WALL)
0	0.0	0	0.0	18-DIKE OR CURB
0	0.0	0	0.0	19-TRAFFIC ISLAND
0	0.0	0	0.0	20-RAISED BARS
0	0.0	0	0.0	21-CONCRETE OBJ(HDWL,D.I.)
0	0.0	0	0.0	22-GUIDEPOST,CULVERT,PM
6	24.0	1	4.0	23-CUT SLOPE OR EMBANKMENT
4	16.0	2	8.0	24-OVER EMBANKMENT
0	0.0	0	0.0	25-IN WATER
2	8.0	0	0.0	26-DRAINAGE DITCH
0	0.0	3	12.0	27-FENCE
0	0.0	1	4.0	28-TREES
0	0.0	0	0.0	29-PLANTS
0	0.0	0	0.0	30-SOUND WALL
0	0.0	0	0.0	40-NATURAL MATRL ON ROAD
0	0.0	0	0.0	41-TEMP BARRICADES, CONES
0	0.0	0	0.0	42-OTHER OBJECT ON ROAD
0	0.0	1	4.0	43-OTHER OBJECT OFF ROAD
4	16.0	8	32.0	44-OVERTURNED
0	0.0	0	0.0	45-CRASH CUSHION(SAND)
0	0.0	0	0.0	46-CRASH CUSHION(OTHER)
0	0.0	0	0.0	51-CALL BOX
0	0.0	0	0.0	98-UNKNOWN OBJECT STRUCK
0	0.0	0	0.0	99-NO OBJECT INVOLVED
6	24.0	1	4.0	V1 THRU V9-VEHICLE 1 TO 9
0	0.0	0	0.0	<<-NOT STATED
2	8.0	24	96.0	---DOES NOT APPLY
0	0.0	0	0.0	-INVALID CODES

<-----------------LOCATION OF COLLISION------------------------>

PRIMARY NUMBER	PRIMARY PCT	OTHERS NUMBER	OTHERS PCT	CODE
0	0.0	0	0.0	A-BEYOND MEDIAN OR STRIPE-LFT
4	16.0	2	8.0	B-BEYOND SHLDER DRIVERS LEFT
0	0.0	0	0.0	C-LEFT SHOULDER AREA
5	20.0	2	8.0	D-LEFT LANE
0	0.0	0	0.0	E-INTERIOR LANES
7	28.0	2	8.0	F-RIGHT LANE
0	0.0	0	0.0	G-RIGHT SHOULDER AREA
13	52.0	10	40.0	H-BEYOND SHLDER DRIVERS RIGHT
0	0.0	0	0.0	I-GORE AREA
0	0.0	0	0.0	J-OTHER
0	0.0	0	0.0	V-HOV LANE(S)
0	0.0	0	0.0	W-HOV LANE BUFFER AREA
0	0.0	0	0.0	<-NOT STATED
2	8.0	24	96.0	--DOES NOT APPLY
0	0.0	0	0.0	-INVALID CODES

<-----SOBRIETY-----------DRUG/PHYSICAL----------------------->

SOBRIETY NUMBER	SOBRIETY PCT	DRUG/PHYSICAL NUMBER	DRUG/PHYSICAL PCT	CODE
22	88.0	0	0.0	A-HAD NOT BEEN DRINKING
2	8.0	0	0.0	B-HBD - UNDER INFLUENCE
0	0.0	0	0.0	C-HBD - NOT UNDER INFLUENCE
1	4.0	0	0.0	D-HBD - IMPAIRMENT UNKNOWN
0	0.0	0	0.0	E-UNDER DRUG INFLUENCE
0	0.0	0	0.0	F-OTHER PHYSICAL IMPAIRMENT
1	4.0	0	0.0	G-IMPAIRMENT NOT KNOWN
0	0.0	0	0.0	H-NOT APPLICABLE
0	0.0	1	4.0	I-FATIGUE
0	0.0	24	96.0	<-NOT STATED
0	0.0	0	0.0	--DOES NOT APPLY
		0	0.0	-INVALID CODES

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#1 I-15 SB TO PANKEY

AXR330-CONTROLS TASAS SELECTIVE RECORD RETRIEVAL 02-15-02 PAGE 1
REQ NO 4087 SD 076 R017.169/ 017.866 ALL ACCIDENTS 06-30-96/07-01-01

SUBMITTORS DISTRICT B1 - MESSAGES -

SUBMITTORS NAME CATHY

ACCIDENTS SELECTED 9

LOCATION CRITERIA -

DISTRICT	11	POSTMILE FROM	R017.169	TO	017.866		DATE RANGE FROM	06-30-96	TO	07-01-01
ROUTE	076	OR FROM		TO		AND	OR FROM		TO	
COUNTY	SD	OR FROM		TO			OR FROM		TO	

ACCIDENT AND HIGHWAY CRITERIA -
11 AN 508 ACC FILE TYPE EQ H

I-15 SB TO PANKEY

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AXR330 ACC-DETAIL
REQ NO 4087

SD 076 R017.169/ 017.866

TASAS SELECTIVE RECORD RETRIEVAL
ALL ACCIDENTS

02-15-02
06-30-96/07-01-01

DIST	RTES NO	U F	CO	P LOC R POST E MILE	H G	A C	M T	B A	LANES LT	LANES RT	RI UO	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH	P T	D I R	V H I	S I	PERSN K	PERSN I	O L S P	O L S C	O L S C	O L S C	OA F 12	M O V	SD P 12
11	076		SD	R017.210	D	C	H	Z	01	01	RO	H	-	W	6	10-24-97	0550	968506506	C	B	C	D	G	A	F	01	J	W	1	<	00	01	44F	---	---	---	N<	D	A<
11	076		SD	R017.230	D	C	H	Z	01	01	RO	H	-	W	2	05-26-97	1245	968507304	6	A	A	A	H	A	C	02	A	W	1	<	00	00	V2F	---	---	---	F<	B	A<
																											A	W	1	<	00	00	V1F	---	---	---	N<	A	A<
11	076		SD	R017.240	D	C	H	Z	01	01	RO	H	-	W	1	07-19-98	0125	968513376	5	A	D	A	H	D	C	02	A	W	1	<	00	00	V2F	---	---	---	N<	B	G<
																											A	W	1	<	00	00	V1F	43H	---	---	N<	B	A<
11	076		SD	R017.310	D	C	H	Z	01	01	RO	H	-	E	7	10-07-00	1110	968509664	5	A	A	A	H	A	C	03	A	E	1	<	00	00	V2J	---	---	---	N<	B	A<
																											A	E	1	<	00	02	V1J	V3J	---	---	N<	A	A<
																											A	E	1	<	00	00	---	V2J	---	---	N<	A	A<
11	076		SD	R017.310	D	C	H	Z	01	01	RO	H	-	E	6	03-21-97	1410	968512529	6	A	A	A	H	A	D	02	A	E	1	<	00	01	V2F	---	---	---	N<	B	A<
																											D	N	3	<	00	01	V1F	---	---	---	N<	E	A<
11	076		SD	R017.400	D	C	H	Z	01	01	RO	H	-	E	1	05-18-97	1430	968512466	6	B	A	A	H	A	D	02	E	E	1	<	00	00	V2F	13B	---	---	N<	B	A<
																											A	N	3	<	00	01	V1F	---	---	---	N<	E	A<
11	076		SD	R017.410	D	C	H	Z	01	01	RO	H	-	E	3	05-05-98	1255	968506650	5	B	A	A	H	A	C	02	D	E	1	<	00	00	V2J	---	---	---	F<	B	A<
																											D	E	1	<	00	00	V1J	---	---	---	N<	A	A<
11	076		SD	R017.410	D	C	H	Z	01	01	RO	H	-	W	6	01-03-97	1645	968510942	6	B	B	A	H	D	B	02	D	N	3	<	00	00	V2B	---	---	---	F<	E	A<
																											D	E	1	<	00	00	V1J	---	---	---	N<	E	A<
11	076		SD	R017.430	D	C	H	Z	01	01	RO	H	-	W	6	12-01-00	1610	968508615	5	A	A	A	H	A	C	02	A	W	1	<	00	00	V2F	---	---	---	N<	B	A<
																											D	W	1	<	00	00	V1F	---	---	---	N<	A	A<

- - - ACCIDENT SUMMARY - - -

TOTAL ACCIDENTS	FATAL	INJURY	PDO	PERSONS KILLED	PERSONS INJURED
9	0	4	5	0	6

WITHOUT DETAIL
0

MOTOR VEHICLES INVOLVED NUMBER	PCT	CODE
1	11.1	1
7	77.7	2
1	11.1	3
0	0.0	> 3

LINES CODED NUMBER	PCT	CODE
1	11.1	1
7	77.7	2
1	11.1	3
0	0.0	4
0	0.0	5
0	0.0	6
0	0.0	7
0	0.0	8
0	0.0	9

<--------HOUR OF DAY-------->

NUMBER	PCT	CODE
0	0.0	00- 12 MID.
1	11.1	01- 1 A.M.
0	0.0	02- 2 A.M.
0	0.0	03- 3 A.M.
0	0.0	04- 4 A.M.
1	11.1	05- 5 A.M.
0	0.0	06- 6 A.M.
0	0.0	07- 7 A.M.
0	0.0	08- 8 A.M.
0	0.0	09- 9 A.M.
0	0.0	10- 10 A.M.
1	11.1	11- 11 A.M.
2	22.2	12- 12 NOON
0	0.0	13- 1 P.M.
2	22.2	14- 2 P.M.
0	0.0	15- 3 P.M.
2	22.2	16- 4 P.M.
0	0.0	17- 5 P.M.
0	0.0	18- 6 P.M.
0	0.0	19- 7 P.M.
0	0.0	20- 8 P.M.
0	0.0	21- 9 P.M.
0	0.0	22- 10 P.M.
0	0.0	23- 11 P.M.
0	0.0	25- UNKNOWN

<-------ACCESS CONTROL---------->

NUMBER	PCT	CODE
9	100.0	C-CONVENTIONAL
0	0.0	E-EXPRESSWAY
0	0.0	F-FREEWAY
0	0.0	S-1-WAY CITY ST
0	0.0	--INVALID DATA
0	0.0	+-NO DATA

<-------SIDE OF HIGHWAY------>

NUMBER	PCT	CODE
0	0.0	N-NORTHBOUND
0	0.0	S-SOUTHBOUND
4	44.4	E-EASTBOUND
5	55.5	W-WESTBOUND

<-----------YEAR------->

NUMBER	PCT	CODE
0	0.0	1991
0	0.0	1992
0	0.0	1993
0	0.0	1994
0	0.0	1995
0	0.0	1996
5	55.5	1997
2	22.2	1998
0	0.0	1999
2	22.2	2000
0	0.0	2001

<-------------MONTH----------->

NUMBER	PCT	CODE
1	11.1	01-JANUARY
0	0.0	02-FEBRUARY
1	11.1	03-MARCH
0	0.0	04-APRIL
3	33.3	05-MAY
0	0.0	06-JUNE
1	11.1	07-JULY
0	0.0	08-AUGUST
0	0.0	09-SEPTEMBER
2	22.2	10-OCTOBER
0	0.0	11-NOVEMBER
1	11.1	12-DECEMBER

<---------DAY OF WEEK-------->

NUMBER	PCT	CODE
2	22.2	1-SUNDAY
1	11.1	2-MONDAY
1	11.1	3-TUESDAY
0	0.0	4-WEDNESDAY
0	0.0	5-THURSDAY
4	44.4	6-FRIDAY
1	11.1	7-SATURDAY

A40

- - - ACCIDENT SUMMARY - - -

PRIMARY COLLISION FACTOR

NUMBER	PCT	CODE
0	0.0	1-INFLUENCE ALCOHOL
0	0.0	2-FOLLOW TOO CLOSE
0	0.0	3-FAILURE TO YIELD
0	0.0	4-IMPROPER TURN.
4	44.4	5-SPEEDING
4	44.4	6-OTHER VIOLATIONS
0	0.0	B-IMPROPER DRIVING
1	11.1	C-OTHER THAN DRIVER
0	0.0	D-UNKNOWN
0	0.0	E-FELL ASLEEP
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

TYPE OF COLLISION

NUMBER	PCT	CODE
0	0.0	A-HEAD-ON
1	11.1	B-SIDESWIPE
5	55.5	C-REAR END
2	22.2	D-BROADSIDE
0	0.0	E-HIT OBJECT
1	11.1	F-OVERTURN
0	0.0	G-AUTO-PEDESTRIAN
0	0.0	H-OTHER
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

ROADWAY CONDITION

NUMBER	PCT	CODE
0	0.0	A-HOLES, RUTS
0	0.0	B-LOOSE MATERIAL
0	0.0	C-OBSTRUCTION ON ROAD
0	0.0	D-CONSTRUCT-REPAIR-ZONE
0	0.0	E-REDUCED ROAD WIDTH
0	0.0	F-FLOODED
1	11.1	G-OTHER
8	88.8	H-NO UNUSUAL CONDITION
0	0.0	<-NOT STATED

WEATHER

NUMBER	PCT	CODE
5	55.5	A-CLEAR
4	44.4	B-CLOUDY
0	0.0	C-RAINING
0	0.0	D-SNOWING
0	0.0	E-FOG
0	0.0	F-OTHER
0	0.0	G-WIND
0	0.0	<-NOT STATED

LIGHTING

NUMBER	PCT	CODE
6	66.6	A-DAYLIGHT
1	11.1	B-DUSK/DAWN
1	11.1	C-DARK-STREET LIGHT
1	11.1	D-DARK-NO STREET LIGHT
0	0.0	E-DARK-INOPR STREET LIGHT
0	0.0	F-DARK-NOT STATED
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

ROAD SURFACE

NUMBER	PCT	CODE
8	88.8	A-DRY
0	0.0	B-WET
0	0.0	C-SNOWY, ICY
1	11.1	D-SLIPPERY
0	0.0	<-NOT STATED
0	0.0	-INVALID CODES

RIGHT OF WAY CONTROL

NUMBER	PCT	CODE
7	77.7	A-CONTROL FUNCTIONING
0	0.0	B-CONTROL NOT FUNCTIONING
0	0.0	C-CONTROLS OBSCURED
2	22.2	D-NO CONTROLS PRESENT
0	0.0	<-NOT STATED

HIGHWAY GROUP

NUMBER	PCT	CODE
0	0.0	R-IND. ALIGN-RIGHT
0	0.0	L-IND. ALIGN-LEFT
9	100.0	D-DIVIDED
0	0.0	U-UNDIVIDED

INTERSECTION OR RAMP ACCIDENT LOCATION

NUMBER	PCT	CODE
0	0.0	1-RAMP INTERSECTION (EXIT)
0	0.0	2-RAMP
0	0.0	3-RAMP ENTRY
0	0.0	4-RAMP AREA, INTERSECT STREET
0	0.0	5-IN INTERSECTION
0	0.0	6-OUTSIDE INTRSCT-NONSTATE RTE
9	100.0	--DOES NOT APPLY

A41

- - - PARTY SUMMARY - - -

PARTY TYPE

NUMBER	PCT	CODE
6	66.6	A-PASNGR CAR/STA WAGON
0	0.0	B-PASNGR CAR W/TRALR
0	0.0	C-MOTORCYCLE
4	44.4	D-PICKUP/PANEL TRUCK
1	11.1	E-PICKUP/PANEL W/TRALR
0	0.0	F-TRUCK/TRUCK TRACTOR
0	0.0	G-TRK/TRACTOR & 1 TRALR
0	0.0	2-TRK/TRACTOR & 2 TRALR
0	0.0	3-TRK/TRACTOR & 3 TRALR
0	0.0	4-SINGLE UNIT TANKER
0	0.0	5-TRK/TRA & 1 TANK TRLR
0	0.0	6-TRK/TRA & 2 TANK TRLR
0	0.0	H-SCHOOL BUS
0	0.0	I-OTHER BUS
1	11.1	J-EMERGENCY VEHICLE
0	0.0	K-HIGHWAY CONST EQUIP
0	0.0	L-BICYCLE
0	0.0	M-OTHER-MOTOR VEH
0	0.0	N-OTHER-NON-MOTOR VEH
0	0.0	O-SPILLED LOADS
0	0.0	P-DISENGAGED TOW
0	0.0	Q-UNINVOLVED VEHICLE
0	0.0	R-MOPED
0	0.0	T-TRAIN
0	0.0	U-PEDESTRIAN
0	0.0	V-DISMOUNT PEDESTRIAN
0	0.0	W-ANIMAL - LIVESTOCK
0	0.0	X-ANIMAL - DEER
0	0.0	Z-ANIMAL - OTHER

MOVEMENT PRECEDING COLLISION

NUMBER	PCT	CODE
4	44.4	A-STOPPED
7	77.7	B-PROCEDED STRAIGHT
0	0.0	C-RAN OFF ROAD
1	11.1	D-MAKING RIGHT TURN
3	33.3	E-MAKING LEFT TURN
0	0.0	F-MAKING U TURN
0	0.0	G-BACKING
0	0.0	H-SLOWING, STOPPING
0	0.0	I-PASS OTHER VEHICLE
0	0.0	J-CHANGING LANES
0	0.0	K-PARKING
0	0.0	L-ENTER FROM SHLDR
0	0.0	M-OTHER UNSAFE TURN
0	0.0	N-CROSS INTO OPP LN
0	0.0	O-PARKED
0	0.0	P-MERGING
0	0.0	Q-TRVL WRONG WAY
0	0.0	R-OTHER
0	0.0	<-NOT STATED
		PEDESTRIAN
0	0.0	2-XING XWALK-INTRST
0	0.0	3-XING XWALK-NOT INTR
0	0.0	4-XING NOT XWALK
0	0.0	5-ROADWAY-INCL SHLDR
0	0.0	6-NOT IN ROADWAY
0	0.0	7-APRH-LEAVE SCHL BUS
0	0.0	-INVALID CODES

OTHER ASSOCIATED FACTOR

# 1	PCT	# 2	PCT	CODE
0	0.0	0	0.0	1-INFLUENCE ALCOHOL
0	0.0	0	0.0	2-FOLLOW TOO CLOSE
0	0.0	0	0.0	3-FAILURE TO YIELD
0	0.0	0	0.0	4-IMPROPER TURN
0	0.0	0	0.0	5-SPEEDING
0	0.0	0	0.0	6-OTHER VIOLATIONS
0	0.0	0	0.0	A-CELL PHONE* (INATTN)
0	0.0	0	0.0	B-ELECTRONIC EQUIP* (INATTN)
0	0.0	0	0.0	C-RADIO/CD/HEADPHN* (INATTN)
0	0.0	0	0.0	D-SMOKING* (INATTN)
0	0.0	0	0.0	E-VISION OBSCUREMENT
3	33.3	0	0.0	F-INATTENTION - OTHER
0	0.0	0	0.0	G-STOP & GO TRAFFIC
0	0.0	0	0.0	H-ENTER/LEAVE RAMP
0	0.0	0	0.0	I-PREVIOUS COLLISION
0	0.0	0	0.0	J-UNFAMILIAR WITH ROAD
0	0.0	0	0.0	K-DEFECT VEHICLE EQUIP
0	0.0	0	0.0	L-UNINVOLVED VEHICLE
0	0.0	0	0.0	M-OTHER
9	100.0	0	0.0	N-NONE APPARENT
0	0.0	0	0.0	P-WIND
0	0.0	0	0.0	R-RAMP ACCIDENT
0	0.0	0	0.0	S-RUNAWAY VEHICLE
0	0.0	0	0.0	T-EATING* (INATTN)
0	0.0	0	0.0	U-CHILDREN* (INATTN)
0	0.0	0	0.0	V-ANIMALS* (INATTN)
0	0.0	0	0.0	W-PERSONAL HYGIENE* (INATTN)
0	0.0	0	0.0	X-READING* (INATTN)
0	0.0	9	100.0	<-NOT STATED
0	0.0	0	0.0	--DOES NOT APPLY

*INATTENTION CODES EFF. 01-01-01

DIRECTION OF TRAVEL

NUMBER	PCT	CODE
3	33.3	N-N, NE, NW BOUND
0	0.0	S-S, SE, SW BOUND
5	55.5	E-EASTBOUND
4	44.4	W-WESTBOUND
0	0.0	<-NOT STATED
0	0.0	--DOES NOT APPLY

SPECIAL INFORMATION

NUMBER	PCT	CODE
0	0.0	A-HAZARDOUS MATERIALS
0	0.0	B-CELL PHONE IN USE*
0	0.0	C-CELL PHONE NOT IN USE*
0	0.0	D-CELL PHONE NONE/UNKNOWN*
9	100.0	<-NOT STATED
0	0.0	--DOES NOT APPLY
0	0.0	-INVALID CODES

*SPECIAL INFORMATION CODES EFF. 04-01-01

A42

- - - PARTY SUMMARY - - -

OBJECT STRUCK

PRIMARY NUMBER	PRIMARY PCT	OTHERS NUMBER	OTHERS PCT	
0	0.0	0	0.0	01-SIDE OF BRIDGE RAILING
0	0.0	0	0.0	02-END OF BRIDGE RAILING
0	0.0	0	0.0	03-PIER,COLUMN,ABUTMENT
0	0.0	0	0.0	04-BOTTOM OF STRUCTURE
0	0.0	0	0.0	05 BRIDGE END POST IN GORE
0	0.0	0	0.0	06-END OF GUARD RAIL
0	0.0	0	0.0	07-BRIDGE APPROACH GRD RAIL
0	0.0	0	0.0	10-LIGHT OR SIGNAL POLE
0	0.0	0	0.0	11-UTILITY POLE
0	0.0	0	0.0	12-POLE (TYPE NOT STATED)
0	0.0	1	11.1	13-TRAFFIC SIGN/SIGN POST
0	0.0	0	0.0	14-OTHER SIGNS NOT TRAFFIC
0	0.0	0	0.0	15-GUARDRAIL
0	0.0	0	0.0	16-MEDIAN BARRIER
0	0.0	0	0.0	17-WALL(EXCEPT SOUND WALL)
0	0.0	0	0.0	18-DIKE OR CURB
0	0.0	0	0.0	19-TRAFFIC ISLAND
0	0.0	0	0.0	20-RAISED BARS
0	0.0	0	0.0	21-CONCRETE OBJ(HDWL,D.I.)
0	0.0	0	0.0	22-GUIDEPOST,CULVERT,PM
0	0.0	0	0.0	23-CUT SLOPE OR EMBANKMENT
0	0.0	0	0.0	24-OVER EMBANKMENT
0	0.0	0	0.0	25-IN WATER
0	0.0	0	0.0	26-DRAINAGE DITCH
0	0.0	0	0.0	27-FENCE
0	0.0	0	0.0	28-TREES
0	0.0	0	0.0	29-PLANTS
0	0.0	0	0.0	30-SOUND WALL
0	0.0	0	0.0	40-NATURAL MATRL ON ROAD
0	0.0	0	0.0	41-TEMP BARRICADES, CONES
0	0.0	0	0.0	42-OTHER OBJECT ON ROAD
0	0.0	1	11.1	43-OTHER OBJECT OFF ROAD
1	11.1	0	0.0	44-OVERTURNED
0	0.0	0	0.0	45-CRASH CUSHION(SAND)
0	0.0	0	0.0	46-CRASH CUSHION(OTHER)
0	0.0	0	0.0	51-CALL BOX
0	0.0	0	0.0	98-UNKNOWN OBJECT STRUCK
0	0.0	0	0.0	99-NO OBJECT INVOLVED
8	88.8	1	11.1	V1 THRU V9-VEHICLE 1 TO 9
0	0.0	0	0.0	<<-NOT STATED
1	11.1	9	100.0	---DOES NOT APPLY
0	0.0	0	0.0	-INVALID CODES

LOCATION OF COLLISION

PRIMARY NUMBER	PRIMARY PCT	OTHERS NUMBER	OTHERS PCT	CODE
0	0.0	0	0.0	A-BEYOND MEDIAN OR STRIPE-LFT
1	11.1	1	11.1	B-BEYOND SHLDER DRIVERS LEFT
0	0.0	0	0.0	C-LEFT SHOULDER AREA
0	0.0	0	0.0	D-LEFT LANE
0	0.0	0	0.0	E-INTERIOR LANES
6	66.6	0	0.0	F-RIGHT LANE
0	0.0	0	0.0	G-RIGHT SHOULDER AREA
0	0.0	1	11.1	H-BEYOND SHLDER DRIVERS RIGHT
0	0.0	0	0.0	I-GORE AREA
3	33.3	1	11.1	J-OTHER
0	0.0	0	0.0	V-HOV LANE(S)
0	0.0	0	0.0	W-HOV LANE BUFFER AREA
0	0.0	0	0.0	<-NOT STATED
1	11.1	9	100.0	--DOES NOT APPLY
0	0.0	0	0.0	-INVALID CODES

SOBRIETY / DRUG/PHYSICAL

SOBRIETY NUMBER	SOBRIETY PCT	DRUG/PHYSICAL NUMBER	DRUG/PHYSICAL PCT	CODE
9	100.0	0	0.0	A-HAD NOT BEEN DRINKING
0	0.0	0	0.0	B-HBD - UNDER INFLUENCE
0	0.0	0	0.0	C-HBD - NOT UNDER INFLUENCE
0	0.0	0	0.0	D-HBD - IMPAIRMENT UNKNOWN
0	0.0	0	0.0	E-UNDER DRUG INFLUENCE
0	0.0	0	0.0	F-OTHER PHYSICAL IMPAIRMENT
1	11.1	0	0.0	G-IMPAIRMENT NOT KNOWN
0	0.0	0	0.0	H-NOT APPLICABLE
0	0.0	0	0.0	I-FATIGUE
0	0.0	9	100.0	<-NOT STATED
0	0.0	0	0.0	--DOES NOT APPLY
		0	0.0	-INVALID CODES

- California Department Transportation Accident Records

A-44

California Department of Transportation

OTM22131

Table B Accident Records

A45

Policy controlling the use of Traffic Accident Surveillance and Analysis System (TASAS) - Transportation Systems Network (TSN) Reports

1.TASAS - TSN has officially replaced the TASAS - "Legacy" database.

2.Reports from TSN are to be used and interpreted by the California Department of Transportation (Caltrans) officials or authorized repesentative.

3.Electronic versions of these reports may be emailed between Caltrans' employees only using the State computer system.

4.The contents of the reports shall be considered confidential and may be privileged pursuant to 23 U.S.C. Section 409, and are for the sole use of the intended recipient(s). Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Do not print, copy or forward.

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California Department of Transportation

OTM22131

Table B Accident Records

Report Parameters:

REPORT DATE:	05/08/2006
REFERENCE DATE:	05/08/2006
SUBMITTOR:	T11LMELE
REPORT TITLE:	76
EVENT ID:	2161699

Total Accidents Retrieved

71

08/2006
57 AM

Table B Accident Records

EQUEST-	& LINE	ARS	P P	POST MILE	P S	F T I R L	S O H	D A Y	ACCIDENT DATE MM-DD-YY	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH	P T	D I R	V H I	S I	PERSON K	I	O S P L O C	O S O L O C	O S O L O C	O S O L O C	OA F 12	M O V	SD P 12
1	1	11 SD 076	R	017.380	H	-	E	7	09-27-03	2035	965015113	1	A	C	A	H	D	C	02	A	E	1	D	00	00	V2F	---	---	---	5<	B	B<
																				A	E	1	D	00	01	V1F	---	---	---	N<	A	A<
1	1	11 SD 076	R	017.390	H	-	E	7	06-21-03	1115	371000889	D	B	A	B	H	A	C	02	A	E	1	D	00	00	V2F	---	---	---	N<	B	G<
																				A	E	1	D	00	00	V1F	---	---	---	N<	A	A<
1	1	11 SD 076	R	017.390	H	-	E	7	03-13-04	2255	965015228	1	A	D	A	H	D	C	03	A	E	1	D	00	01	V2J	---	---	---	5<	B	B<
																				A	E	1	D	00	00	V1J	V3J	---	---	N<	B	A<
																				D	E	1	D	00	01	---	V2J	---	---	N<	B	A<
1	1	11 SD 076	R	017.390	H	-	E	6	07-15-05	0230	965015906	1	B	D	A	H	D	E	01	D	E	1	C	00	00	28H	---	---	---	4<	C	B<
1	1	11 SD 076	R	017.420	I	5	E	2	05-31-04	1730	371001091	6	A	A	A	H	A	B	03	A	E	1	C	00	02	V2F	---	---	---	N<	B	A<
																				A	W	1	C	00	00	V1D	V3D	---	---	N<	E	A<
																				A	W	1	C	00	00	---	V2F	---	---	N<	E	A<
1	1	11 SD 076	R	017.420	I	5	E	4	12-01-04	1509	965016350	6	A	A	A	H	A	D	03	A	E	1	C	00	02	V2F	V3D	---	---	2<	B	A<
																				J	S	1	C	00	00	V1F	---	---	---	N<	D	A<
																				A	W	1	D	00	00	---	V1F	---	---	N<	A	A<
1	1	11 SD 076	R	017.420	I	5	W	1	05-01-05	0700	965016350	6	A	A	A	H	A	A	02	A	W	1	C	00	00	V2F	---	---	---	5<	B	A<
																				A	E	1	C	00	00	V1D	---	---	---	N<	E	A<
1	1	11 SD 076	R	017.430	H	-	E	6	11-14-03	1715	965013636	5	A	D	A	H	D	B	02	A	E	I	D	00	00	V2J	---	---	---	N<	H	A<
																				A	E	1	D	00	00	V1D	---	---	---	N<	B	A<
1	1	11 SD 076	R	017.480	H	-	E	4	06-08-05	1005	965014724	5	A	A	A	H	D	C	02	C	E	1	D	00	00	V2F	44F	---	---	N<	B	A<
																				D	E	1	D	00	00	V1F	---	---	---	N<	H	A<
1	1	11 SD 076	R	017.500	H	-	W	1	11-21-04	1215	965010181	5	B	A	A	H	A	C	02	E	W	1	<	00	00	V2F	---	---	---	N<	H	A<
																				D	W	1	<	00	02	V1F	---	---	---	N<	H	A<
1	1	11 SD 076	R	017.500	H	-	E	5	06-02-05	1725	965012006	4	B	A	A	H	D	C	02	D	E	1	C	00	00	V2F	---	---	---	N<	F	G<
																				A	E	1	C	00	02	V1F	---	---	---	N<	B	A<
1	1	11 SD 076		017.820	H	-	E	5	07-21-05	0635	965012464	5	A	A	A	H	D	C	02	D	E	1	C	00	00	V2G	---	---	---	E<	C	A<
																				D	E	1	<	00	01	V1G	---	---	---	N<	O	H<
1	1	11 SD 076		017.840	H	-	W	2	06-09-03	2330	968514551	1	C	D	B	H	D	A	02	I	W	1	<	00	09	V2F	---	---	---	N<	B	A<
																				A	E	1	<	00	01	V1D	---	---	---	5<	N	H<
1	1	11 SD 076		017.840	H	-	W	1	07-06-03	0220	968514551	1	A	D	A	H	D	A	02	A	W	1	C	00	02	V2F	---	---	---	N<	A	A<
																				A	E	1	C	00	00	V1D	---	---	---	5<	N	B<
1	1	11 SD 076		017.866	I	5	E	5	05-22-03	1120	968509664	4	A	A	A	H	A	B	02	A	E	1	D	00	00	V2F	---	---	---	N<	F	A<
																				A	E	1	D	00	01	V1F	---	---	---	N<	B	A<
1	1	11 SD 076		017.866	I	5	E	6	06-18-04	1800	965016516	3	B	A	A	H	A	D	02	A	E	1	C	00	02	V2F	---	---	---	N<	B	A<
																				F	N	2	C	00	01	V1F	---	---	---	N<	E	A<
1	1	11 SD 076		017.866	I	5	W	6	09-10-04	0530	965014724	2	A	D	A	H	D	D	02	F	E	1	D	00	00	V2D	---	---	---	5<	B	A<
																				A	E	1	D	00	00	V1D	---	---	---	N<	E	A<
1	1	11 SD 076		017.880	H	-	W	1	06-22-03	0707	968512466	C	B	A	A	H	D	E	01	A	W	1	C	00	00	V2F	---	---	---	N<	B	A<
																				Z	<	-	<	00	00	V1-	---	---	---	<<	<	<<
1	1	11 SD 076		018.020	H	-	E	6	07-30-04	1755	965016350	6	A	A	A	H	D	E	01	A	E	1	C	00	03	24H	28H	---	---	N<	C	A<
1	1	11 SD 076		018.070	H	-	E	1	02-02-03	1330	968509796	E	A	A	A	H	D	E	01	A	E	1	C	00	02	24H	11H	---	---	4<	B	AI
1	1	11 SD 076		018.200	H	-	E	6	08-05-05	1120	965011422	4	A	A	A	H	A	B	02	D	W	1	C	00	00	V2F	---	---	---	3<	R	A<
																				G	E	1	C	00	00	V1D	---	---	---	N<	B	A<
1	1	11 SD 076		018.260	H	-	E	7	11-22-03	0417	965015868	6	A	D	A	H	D	A	03	D	E	1	<	00	01	V2D	V3D	---	---	N<	N	A<
																				A	W	1	<	00	01	V1F	---	---	---	N<	B	A<
																				A	W	1	<	00	02	---	V1F	---	---	5<	B	A<
1	1	11 SD 076		018.270	H	-	E	7	03-12-05		965015295	4	E	D	A	H	D	E	01	D	E	1	C	00	01	13H	24H	44H	---	N<	C	D<

REQUEST-	& LINE	ARS	P P POST MILE	P S	F T	I R L	S O H	D A Y	ACCIDENT DATE MM-DD-YY	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO. MTR VEH	P T	D I R	V H I	S I	PERSON K	I	O S P	L O C	O S O	L O C	O S O	L O C	O S O	L O C	OA F 12	M O V	SD P 12
1	1	11 SD 076	018.270	H	-		E	2	05-30-05	1345	965016485	1	A	A	A	H	D	E	01	C	E	1	C	00	01	13H	24H	44H	---	5<	B	B<
1	1	11 SD 076	018.340	H	-		E	5	11-20-03	0500	965015276	1	A	D	A	H	D	E	01	A	E	1	D	00	01	13H	24H	44H	---	4<	R	B<
1	1	11 SD 076	018.340	H	-		E	1	12-14-03	1640	965011891	5	B	A	B	H	D	D	02	D	E	1	D	00	00	V2D	---	---	---	6<	N	A<
																				A	W	1	D	00	01	V1F	---	---	---	<<	B	A<
1	1	11 SD 076	018.340	H	-		E	1	04-11-04	1909	965016516	5	A	B	A	H	D	F	01	C	E	1	C	00	01	24H	44H	---	---	N<	B	A<
1	1	11 SD 076	018.340	H	-		E	6	06-18-04	0205	965015750	1	A	B	A	H	D	E	01	A	E	1	D	00	01	23B	---	---	---	5<	C	B<
1	1	11 SD 076	018.370	H	-		E	3	03-11-03	0230	968512924	1	A	D	A	H	D	E	01	A	E	1	B	00	00	24H	43H	---	---	4<	C	BE
1	1	11 SD 076	018.540	H	-		E	2	06-28-04	2245	965016350	1	A	D	A	H	D	A	03	A	E	1	C	00	01	V2D	V3D	---	---	6<	N	B<
																				A	W	1	C	00	01	V1F	---	---	---	N<	B	A<
																				A	W	1	C	00	00	---	V1F	---	---	N<	B	A<
1	1	11 SD 076	018.540	H	-		E	1	10-17-04	0022	965016665	6	B	D	B	H	D	A	02	A	E	1	C	00	00	V2D	---	---	---	N<	N	A<
																				D	W	1	C	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	018.540	H	-		E	6	06-03-05	0035	965015831	5	C	D	B	H	D	B	02	A	E	1	C	00	00	V2D	---	---	---	N<	N	A<
																				A	W	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	018.670	H	-		E	7	03-29-03	2315	968512190	1	A	D	A	H	D	B	03	A	E	1	D	00	02	V2D	V3D	23B	---	6<	N	B<
																				A	W	1	D	00	00	V1F	---	---	---	N<	E	A<
																				A	W	1	D	00	02	---	V1F	---	---	N<	B	A<
1	1	11 SD 076	018.700	H	-		E	3	08-30-05	0925	965014724	5	A	A	A	H	D	E	01	C	E	1	C	00	01	24H	44H	---	---	N<	C	A<
1	1	11 SD 076	018.770	H	-		E	7	04-10-04	0255	965015868	1	B	D	A	H	D	F	01	A	E	1	<	00	00	23B	44B	---	---	4<	M	B<
1	1	11 SD 076	018.800	H	-		W	2	05-26-03	1710	968516619	1	A	A	A	H	D	E	01	C	W	1	D	00	01	23H	44D	---	---	5<	R	B<
1	1	11 SD 076	018.870	H	-		E	5	10-07-04	0500	965014724	6	B	D	A	H	D	B	02	A	E	1	D	00	00	V2D	---	---	---	N<	N	A<
																				A	W	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	018.890	H	-		W	3	01-25-05	1155	965012464	5	B	A	A	H	D	F	01	A	W	1	C	00	01	24B	44B	---	---	D<	C	A<
1	1	11 SD 076	019.010	H	-		W	1	03-27-05	1701	965016516	6	A	A	A	H	D	B	02	C	W	1	C	00	00	V2D	---	---	---	N<	N	A<
																				A	E	1	C	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.010	H	-		W	3	04-05-05	1441	965016516	6	A	A	A	H	D	B	02	F	E	1	C	00	00	V2F	---	---	---	5<	B	A<
																				A	W	1	C	00	01	V1D	---	---	---	N<	N	A<
1	1	11 SD 076	019.030	H	-		E	3	11-18-03	0930	965015295	4	A	A	A	H	D	E	01	A	E	1	D	00	00	13H	24H	44H	---	L<	M	A<
1	1	11 SD 076	019.090	H	-		W	5	01-16-03	0745	968508788	6	B	A	A	H	D	A	02	A	E	1	C	00	00	V2D	---	---	---	N<	Q	A<
																				A	W	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.090	H	-		E	5	02-13-03	1330	968513165	2	B	A	A	H	D	C	02	A	E	1	D	00	00	V2F	---	---	---	N<	H	A<
																				F	E	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.090	H	-		W	4	06-25-03	2255	968512190	6	A	D	A	H	D	B	02	A	W	1	D	00	01	V2D	---	---	---	5<	N	A<
																				A	E	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.090	H	-		E	4	05-11-05	0040	965016350	5	A	D	A	H	D	E	01	A	E	1	B	00	01	13H	44H	24H	---	6F	C	G<
1	1	11 SD 076	019.090	H	-		W	6	10-07-05	1900	965013585	6	A	D	A	H	D	A	02	A	W	1	C	00	02	V2D	---	---	---	N<	B	A<
																				A	E	1	C	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.100	H	-		E	4	03-05-03	1355	968510601	6	A	A	A	H	D	A	02	A	W	1	D	00	01	V2D	---	---	---	N<	N	A<
																				A	E	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.180	H	-		W	6	07-18-03	2200	968515757	6	A	D	A	H	D	B	02	A	W	1	D	00	00	V2D	---	---	---	N<	N	A<
																				A	E	1	C	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076	019.190	H	-		W	2	10-10-05	1640	965011422	6	A	A	A	H	A	B	02	G	E	1	C	00	00	V2D	---	---	---	N<	R	A<
																				A	W	1	C	00	00	V1F	---	---	---	N<	A	A<
1	1	11 SD 076	019.200	H	-		W	7	05-24-03	0225	968514551	1	A	D	A	H	D	E	01	A	W	1	<	00	00	23B	---	---	---	4<	R	B<
1	1	11 SD 076	019.220	H	-		E	7	03-05-05	2322	965015600	6	A	D	A	H	D	A	02	A	E	1	D	00	00	V2F	---	---	---	N<	N	A<
																				A	W	1	D	00	01	V1F	---	---	---	N<	B	A<

A110

Table B Accident Records

REQUEST-	& LINE	ARS	P P	POST MILE	P S	F T	I R L	S O H	D A Y	ACCIDENT DATE MM-DD-YY	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH	P T	D I R	V H T	S I	PERSON K	I	O L S O P C	O L B O O C	O L S O O C	O L S O O C	OA F 12	M O V	SD P 12
1	1	11 SD 076		019.360	H	-		W	5	10-07-04	0805	965014724	5	A	A	A	H	D	E	01	G	W	1	D	00	00	23H	---	---	---	L<	C	A<
1	1	11 SD 076		019.370	H	-		W	7	02-01-03	1325	968509664	4	A	A	A	H	D	E	01	C	W	1	D	00	01	23H	44F	---	---	N<	C	A<
1	1	11 SD 076		019.370	H	-		W	7	03-22-03	1455	968513165	4	A	A	A	H	D	E	01	C	W	1	D	01	01	23H	44H	---	---	N<	C	A<
1	1	11 SD 076		019.370	H	-		W	3	07-08-03	2209	968515757	4	A	D	A	H	D	E	01	D	W	1	D	00	01	23H	44F	---	---	N<	M	A<
1	1	11 SD 076		019.370	H	-		W	3	05-31-05	0045	965016471	4	A	D	A	H	D	E	01	A	W	1	C	00	01	17H	---	---	---	N<	M	A<
1	1	11 SD 076		019.370	H	-		W	3	09-20-05	1432	965016516	5	B	A	A	H	D	F	01	F	W	1	C	00	00	44F	---	---	---	N<	B	A<
1	1	11 SD 076		019.380	H	-		E	1	10-12-03	1250	965014724	5	A	A	A	H	D	C	03	D	E	1	D	00	00	V3F	V2F	V3F	---	N<	H	A<
																					D	E	1	D	00	00	---	V1F	---	---	5<	B	A<
																					A	E	1	D	00	00	V1F	V1F	---	---	N<	A	A<
1	1	11 SD 076		019.380	H	-		W	2	07-19-04	1430	965015295	5	A	A	A	H	D	C	04	D	E	1	D	00	00	V2F	---	---	---	N<	B	A<
																					A	E	1	D	00	00	V1F	V3F	---	---	N<	A	A<
																					A	E	1	D	00	00	---	V2F	V4F	---	N<	A	A<
																					A	E	1	D	00	00	---	V3F	---	---	N<	A	A<
1	1	11 SD 076		019.380	H	-		W	7	07-24-04	1451	965010341	5	A	A	A	H	D	F	01	C	W	1	C	00	01	44F	---	---	---	F<	B	A<
1	1	11 SD 076		019.393	I	5		E	5	06-26-03	1330	968512529	4	A	A	A	H	D	D	02	A	W	1	<	00	01	V2D	44B	24B	---	6<	N	A<
																					A	E	1	<	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076		019.393	I	5		W	7	07-24-04	1450	965016487	5	A	A	A	H	D	F	01	C	W	1	C	00	01	44B	---	---	---	F<	C	A<
1	1	11 SD 076		019.410	H	-		W	5	06-24-04	1533	965016516	5	A	A	A	H	D	F	01	A	W	1	C	00	00	26H	44H	---	---	N<	C	A<
1	1	11 SD 076		019.515	I	5		E	7	06-11-05	2130	965015906	1	A	D	A	H	D	E	01	A	E	1	C	00	00	24H	25H	---	---	4<	C	B<
1	1	11 SD 076		019.520	H	-		W	1	03-08-04	0145	965016090	1	A	C	A	H	D	C	02	A	W	1	C	00	00	V2F	---	---	---	5<	B	B<
																					A	E	1	C	00	00	V1F	---	---	---	N<	H	A<
1	1	11 SD 076		019.530	H	-		W	2	05-03-04	0625	965014724	6	A	A	A	H	D	E	02	D	W	1	D	00	00	V2D	---	---	---	N<	N	A<
																					2	W	1	D	00	00	V1F	---	---	---	N<	B	A<
1	1	11 SD 076		019.600	H	-		W	4	03-05-03	1435	968513165	5	A	A	A	H	D	C	02	A	W	1	D	00	00	V2F	---	---	---	N<	A	A<
																					C	W	1	D	00	01	V1F	44F	---	---	N<	B	A<
1	1	11 SD 076		019.820	H	-		W	1	04-17-05	2250	965014886	1	A	D	A	H	D	E	01	D	W	1	C	00	01	27B	28B	---	---	4<	R	B<
1	1	11 SD 076		019.840	H	-		E	6	07-18-03	2335	968514551	4	A	D	A	H	D	E	01	A	E	1	C	00	00	23M	---	---	---	N<	M	A<
1	1	11 SD 076		019.920	H	-		W	5	07-03-03	1023	968511325	5	A	A	A	H	D	F	01	G	W	1	C	00	00	44F	---	---	---	N<	C	A<
																					D	<	1	<	00	00	---	99F	---	---	<<	R	<<
1	1	11 SD 076		019.990	H	-		E	5	11-25-04	1530	965016516	C	A	A	D	G	D	E	01	D	E	1	C	00	00	17B	---	---	---	N<	C	A<

OTM22130

Table B - Selective Accident Rate Calculation

Policy controlling the use of Traffic Accident Surveillance and Analysis System (TASAS) - Transportation Systems Network (TSN) Reports

1. TASAS - TSN has officially replaced the TASAS - "Legacy" database.

2. Reports from TSN are to be used and interpreted by the California Department of Transportation (Caltrans) officials or authorized representative.

3. Electronic versions of these reports may be emailed between Caltrans' employees only using the State computer system.

4. The contents of these reports shall be considered confidential and may be privileged pursuant to 23 U.S.C. Section 409, and are for the sole use of the intended recipient(s). Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Do not print, copy or forward.

A50

OTM22130

Table B - Selective Accident Rate Calculation

Report Parameters-

Event ID: 2161699
Request Name: 76
Ref Date: 05/08/2006

Request-&Line	LOC	DIR	LSC	Route/Location	Begin Date	End Date	Rate Type	Out Seq	Override Rates			Override ADT		Req. Type	Com-bine?	Excl Ramp?
									Rate	Inj%	Fat%	Main.	Cross			
1 1	H	T	I	11 SD 076 R017.300 thru 11 SD 076 020.000	31-DEC-02	31-DEC-05	N	L						N	N	N

Event Log:

Job Id is : 212948 Accidents Table B Request 76 Submitted by T11LMELE

AS1

California Department of Transportation
Table B - Selective Accident Rate Calculation

Location Description	Rate Group (RUS)	No. of Accidents / Significance: Tot	Fat	Inj	F+I	Multi Veh	Wet	Dark	Pers Kld Inj	ADT Main X-St	Total MV+ or MVM	Accident Rates Actual: Fat	Actual: F+I	Actual: Tot	Average: Fat	Average: F+I	Average: Tot
I SD 076 R017.300 - 11 SD 076 019.999 001-0001 2002-12-31 2005-12-31 36 mo.	2.700 MI H 03 R	71 H97	1	39 H99	40 H99	40	5	31 H97	1 68	13.3	39.29	0.025	1.02	1.81	0.029	.64	1.33

AS2

Accident Rates expressed as: # of accidents / Million vehicle miles

+ denotes that Million Vehicles (MV) used in accident rates instead (for intersections and ramps).

For Ramps RUS only considers R(Rural) U(Urban)

I-15 SB TO PANKEY RD

-A 04-19-99

TASAS TABLE B SELECTIVE ACCIDENT RATE CALCULATION
REQUEST ACTIVITY REPORT

MESSAGE			DT	REQ NO	A S	L T	RTE	D I	TIME PERIOD FROM - TO		SELECT LOCATION BEGIN	END	S C	SEQ 123	R T	A P	AVE RATE	PC IN	PC FA	ADT MAIN	ADT XST	R T	RR UA	PR DT
*	*	*	11	0001	C	H	076	T	01/01/91-12/31/98	SD	R017.169-SD	017.866	I											11
*	*	*	11	0002	C	H	076	T	01/01/91-12/31/91	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0003	C	H	076	T	01/01/92-12/31/92	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0004	C	H	076	T	01/01/93-12/31/93	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0005	C	H	076	T	01/01/94-12/31/94	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0006	C	H	076	T	01/01/95-12/31/95	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0007	C	H	076	T	01/01/96-12/31/96	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0008	C	H	076	T	01/01/97-12/31/97	SD	R017.169-SD	017.866	I			P								11
*	*	*	11	0009	C	H	076	T	01/01/98-12/31/98	SD	R017.169-SD	017.866	I			P								11

A53

-B 04-19-99

TASAS TABLE B SELECTIVE ACCIDENT RATE CALCULATION
FILE CONTROLS
DISTRICT 11

TOTAL REQUESTS READ:	9
TOTAL CARDS READ:	9
PROCESSED:	9
NOT PROCESSED/ERRORS:	0
NOT PROCESSED/TIME:	0
TOTAL REPORT/SPECIAL OUTPUT:	0
SPECIAL PRINT REQUESTS:	0
NOT PROCESSED/TIME:	0
REPORT LINES:	0

*** END AXR251 ***

A54

TASAS TABLE B DISTRICT 11
SELECTIVE ACCIDENT RATE CALCULATION
ROUTE SEQUENCE

A T I O N	D E S C R I P T I O N	RA GRP (RUS)	*-NUMBER OF ACCIDENTS/SIGNIFICANCE* TOT	FAT	INJ	F+I	MULTI VEH	WET	DARK	PER KLD INJ	*ADT * MAIN X-ST	TOTAL MV+ OR MVM	*-ACCIDENT RATE ACCS/MV+ OR MVM-* ACTUAL FAT	ACTUAL F+I	ACTUAL TOT	AVERAGE FAT	AVERAGE F+I	AVERAGE TOT
D R 17.169	THRU SD 017.865	H	65	0	35	35	54	2	20	0	6.9	14.05	.000	2.49	4.63	.029	.77	1.46
1 0.697M	91-01-01 98-12-31 96 MO	(R)	H99		H99	H99			H99	81								
D R 17.169	THRU SD 017.865	H	1	0	1	1	1	0	0	0	7.0	1.77	.000	.57	.57	.029	.77	1.46
2 0.697M	91-01-01 91-12-31 12 MO	(R)								2								
D R 17.169	THRU SD 017.865	H	6	0	5	5	6	1	2	0	7.0	1.77	.000	2.82	3.38	.029	.76	1.46
3 0.697M	92-01-01 92-12-31 12 MO	(R)	H92		H97	H97				7								
D R 17.169	THRU SD 017.865	H	12	0	7	7	8	0	3	0	7.0	1.77	.000	3.96	6.78	.029	.77	1.46
4 0.697M	93-01-01 93-12-31 12 MO	(R)	H99		H99	H99			H90	15								
D R 17.169	THRU SD 017.865	H	13	0	7	7	11	1	6	0	7.0	1.77	.000	3.96	7.35	.029	.77	1.46
5 0.697M	94-01-01 94-12-31 12 MO	(R)	H99		H99	H99			H99	17								
D R 17.169	THRU SD 017.865	H	11	0	4	4	7	0	2	0	6.9	1.76	.000	2.27	6.25	.029	.77	1.46
6 0.697M	95-01-01 95-12-31 12 MO	(R)	H99		H95	H92				4								
D R 17.169	THRU SD 017.865	H	6	0	5	5	6	0	4	0	7.0	1.80	.000	2.78	3.34	.029	.77	1.46
7 0.697M	96-01-01 96-12-31 12 MO	(R)	H92		H97	H97			H97	19								
D R 17.169	THRU SD 017.865	H	11	0	5	5	10	0	2	0	6.7	1.71	.000	2.92	6.43	.029	.77	1.46
8 0.697M	97-01-01 97-12-31 12 MO	(R)	H99		H97	H97				11								
D R 17.169	THRU SD 017.865	H	5	0	1	1	5	0	1	0	6.7	1.71	.000	.58	2.92	.029	.77	1.46
9 0.697M	98-01-01 98-12-31 12 MO	(R)								6								

ASS

TASAS TABLE B DISTRICT 11
SELECTIVE ACCIDENT RATE CALCULATION
END OF JOB

9 RECORDS WERE READ FROM TABB DURING THIS EXECUTION.

INPUT		OUTPUT	
0	SUMMARY REQUESTS	0	SUMMARY RECORDS
0	RECYCLE REQUESTS	0	RECYCLED RECORDS
9	REPORT RECORDS	9	RECORDS PRINTED
9	TOTAL	9	TOTAL

A56

DIST	RTES NO	U F	CO	P LOC R POST E MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH	P T	D I R	V H I	S I	PERSN K	I	O L S O P C	O L S O O C	O L S O O C	O L S O O C	OA F 12	M O V	SD P 12
11	076		SD	R017.420	I	5	E	4	03-20-91	1035	968510039	3	B	A	A	H	A	D	02	A	N	1	<	00	00	V2D	---	---	---	F<	E	A<
																				D	E	2	<	00	02	V1F	---	---	---	N<	B	A<
11	076		SD	R017.390	H	-	W	6	12-11-92	1030	968509599	5	B	A	A	H	D	C	02	D	W	-	<	00	00	V2F	---	---	---	F<	B	A<
																				D	W	-	<	00	01	V1F	---	---	---	N<	B	A<
11	076		SD	R017.420	I	5	E	2	03-02-92	0735	968511888	6	B	A	B	H	A	C	02	D	N	1	<	00	00	V2D	---	---	---	N<	B	A<
																				A	N	1	<	00	00	V1D	---	---	---	N<	A	A<
11	076		SD	R017.420	I	5	E	3	07-07-92	1918	968509796	3	B	B	A	H	A	D	02	A	N	-	<	00	01	V2D	---	---	---	N<	E	A<
																				A	E	-	<	00	01	V1F	---	---	---	N<	B	A<
11	076		SD	R017.420	I	5	W	3	08-11-92	0825	968509996	3	A	A	A	H	A	D	02	D	N	-	<	00	00	V2F	---	---	---	F<	B	A<
																				A	W	-	<	00	01	V1F	---	---	---	N<	B	A<
11	076		SD	R017.420	I	5	E	4	11-04-92	1749	968509664	3	A	C	A	H	A	D	02	A	N	-	<	00	01	V2F	---	---	---	F<	E	A<
																				A	E	-	<	00	00	V1F	---	---	---	N<	B	A<
11	076		SD	R017.420	I	5	W	2	12-21-92	0830	968504077	3	A	A	A	H	D	A	02	A	E	-	<	00	01	V2D	---	---	---	N<	E	A<
																				D	W	-	<	00	01	V1F	---	---	---	N<	B	A<
11	076		SD	R017.169	I	5	E	6	06-18-93	1610	968509664	5	A	A	A	H	D	C	02	D	E	-	<	00	00	V2F	---	---	---	F<	B	A<
																				D	E	-	<	00	00	V1F	---	---	---	N<	A	A<
11	076		SD	R017.180	H	-	W	5	04-08-93	1640	968506433	3	A	A	A	H	A	D	02	D	S	-	<	00	01	V2F	---	---	---	N<	E	A<
																				D	W	-	<	00	01	V1F	---	---	---	N<	H	A<
11	076		SD	R017.410	H	-	E	3	10-05-93	1700	968509523	4	A	A	A	H	A	D	03	A	E	-	<	00	00	V2F	---	---	---	J<	E	A<
																				D	E	-	<	00	00	V1F	V3H	---	---	N<	B	A<
																				A	N	-	<	00	00	---	V2D	---	---	N<	A	A<
11	076		SD	R017.420	I	5	W	1	05-30-93	1705	968510942	3	A	A	A	H	D	A	02	A	E	-	<	00	03	V2D	---	---	---	F<	E	A<
																				D	W	-	<	00	03	V1F	---	---	---	N<	B	A<
11	076		SD	R017.420	I	5	W	4	06-16-93	1530	968508615	1	A	A	A	H	D	D	03	A	N	-	<	00	00	V2B	---	---	---	<<	<	<E
																				A	W	-	<	00	00	V1F	V3D	---	---	<<	B	A<
																				D	E	-	<	00	00	---	V2J	---	---	<<	B	A<
11	076		SD	R017.420	I	5	W	5	06-17-93	0329	968507615	5	A	C	A	H	A	E	01	A	N	-	<	00	01	24H	28H	29H	---	N<	C	A<
11	076		SD	R017.420	I	5	W	3	09-07-93	0700	968509599	3	A	A	A	H	D	D	02	A	E	-	<	00	00	V2D	---	---	---	E<	E	A<
																				D	W	-	<	00	00	V1F	---	---	---	N<	B	A<
11	076		SD	R017.430	H	-	E	3	09-07-93	1715	968509796	5	A	A	A	H	D	C	02	A	N	-	<	00	01	V2F	---	---	---	N<	D	A<
																				A	N	-	<	00	00	V1F	---	---	---	F<	D	A<
11	076		SD	017.730	H	-	E	3	06-29-93	2055	968510960	1	A	D	A	H	D	E	01	A	E	-	<	00	01	41H	44H	---	---	6<	C	B<
11	076		SD	017.730	H	-	E	6	10-15-93	0600	968509599	4	B	D	A	H	D	E	01	C	E	-	<	00	02	41H	44H	---	---	N<	C	A<
11	076		SD	017.770	H	-	E	3	06-22-93	1455	968509664	4	A	A	A	H	A	E	01	A	E	-	<	00	02	13H	17H	---	---	F<	C	A<
11	076		SD	017.860	H	-	W	5	12-09-93	0735	968508562	3	A	A	A	H	A	D	02	A	N	2	<	00	00	V2B	---	---	---	F<	E	A<
																				2	W	1	<	00	00	V1F	---	---	---	N<	B	A<
11	076		SD	R017.169	I	5	W	6	02-11-94	1530	968509664	5	A	A	A	H	A	C	02	A	S	-	<	00	00	V2F	---	---	---	F<	B	A<
																				A	S	-	<	00	00	V1F	---	---	---	N<	A	A<
11	076		SD	R017.390	H	-	W	5	12-22-94	1133	968506650	3	B	A	A	H	A	B	02	A	N	1	<	00	00	V2B	---	---	---	F<	E	A<
																				F	W	3	<	00	00	V1F	---	---	---	N<	B	A<
11	076		SD	R017.400	H	-	E	1	08-14-94	2235	968511366	3	A	C	A	H	D	D	02	A	E	1	<	00	00	V2A	---	---	---	N<	E	<I
																				A	W	1	<	00	02	V1D	18H	---	---	N<	B	A<
11	076		SD	R017.420	I	5	E	6	02-04-94	1920	968506433	6	A	C	A	H	A	D	02	A	N	3	<	00	00	V2D	---	---	---	F<	B	A<
																				A	E	1	<	00	00	V1D	---	---	---	N<	H	A<
11	076		SD	R017.420	I	5	E	1	02-06-94	1810	968509523	3	B	C	A	H	A	D	02	A	N	-	<	00	05	V2F	---	---	---	H<	E	A<
																				A	E	-	<	00	02	V1F	---	---	---	N<	B	B<
11	076		SD	R017.420	I	5	E	7	04-30-94	0315	968508228	3	B	C	B	H	A	D	02	A	N	-	<	00	02	V2B	---	---	---	F<	E	A<
																				A	E	-	<	00	01	V1F	---	---	---	N<	B	C<
11	076		SD	R017.420	I	5	E	6	06-03-94	1245	968509599	3	A	A	A	H	A	D	02	A	N	3	<	00	01	V2D	---	---	---	F<	E	A<
																				A	E	1	<	00	01	V1F	---	---	---	N<	B	A<
11	076		SD	R017.420	I	5	E	4	06-08-94	1810	968511888	3	A	A	A	H	A	D	02	A	N	3	<	00	00	V2F	---	---	---	N<	E	A<
																				A	E	1	<	00	01	V1F	---	---	---	N<	B	A<

A57

DIST	RTES NO	U F	CO	P R E LOC POST MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH	P T	D I R	V H I	S I	PERSN K	I	O S P / L O C	O S O / L O C	O S O / L O C	O S O / L O C	DA F 12	M O V	SD P 12
11	076		SD	R017.420	I	5	E	4	07-06-94	1330	968509840	6	A	A	A	H	A	D	02	A	N	1	<	00	00	V2F	----	----	----	3<	B	A<
																				G	E	2	<	00	00	V1D	----	----	----	N<	B	A<
11	076		SD	R017.420	I	5	W	3	11-08-94	1600	968509796	3	A	A	A	H	D	D	02	A	N	1	<	00	00	V2D	----	----	----	N<	E	A<
																				D	W	1	<	00	00	V1F	----	----	----	N<	B	A<
11	076		SD	017.720	H	-	E	2	05-09-94	1815	968510782	6	A	A	A	H	A	B	03	D	E	-	<	00	00	V2D	V3D	----	----	5<	N	A<
																				F	W	-	<	00	00	V1F	----	----	----	N<	B	A<
																				A	W	-	<	00	01	----	V1F	----	----	<<	B	A<
11	076		SD	017.740	H	-	E	7	10-01-94	2325	968510637	1	B	D	A	H	A	E	01	D	E	1	<	00	01	28B	----	----	----	5<	B	B<
11	076		SD	017.750	H	-	E	1	05-29-94	2030	968509664	1	A	D	A	H	D	E	01	A	E	-	<	00	00	17H	----	----	----	5<	C	B<
11	076		SD	R017.320	H	-	E	3	03-28-95	2040	968510252	3	A	C	A	H	A	B	02	D	S	3	<	00	00	V2B	----	----	----	F<	E	A<
																				F	E	1	<	00	00	V1F	----	----	----	N<	B	A<
11	076		SD	R017.350	H	-	E	4	08-23-95	1650	968512216	5	C	A	A	H	D	C	02	D	E	1	<	00	00	V2F	----	----	----	N<	B	A<
																				A	E	1	<	00	00	V1F	----	----	----	N<	A	A<
11	076		SD	R017.400	H	-	E	5	09-14-95	0800	968507304	3	A	A	A	H	A	D	02	A	E	2	<	00	01	V2F	----	----	----	N<	B	A<
																				D	N	1	<	00	00	V1F	----	----	----	F<	B	A<
11	076		SD	R017.420	I	5	E	7	07-08-95	1500	968512207	3	A	A	A	H	A	D	02	A	N	3	<	00	00	V2F	----	----	----	N<	E	A<
																				A	E	1	<	00	00	V1J	----	----	----	N<	B	A<
11	076		SD	R017.420	I	5	E	3	07-25-95	1020	968506506	6	A	A	A	H	A	D	02	A	N	1	<	00	00	V2F	----	----	----	F<	E	A<
																				D	E	3	<	00	00	V1F	----	----	----	N<	B	A<
11	076		SD	R017.420	I	5	W	1	11-12-95	2130	968512529	3	A	C	A	H	D	D	02	C	W	1	<	00	01	V2F	44F	----	----	N<	B	A<
																				A	E	1	<	00	00	V1D	----	----	----	N<	E	B<
11	076		SD	R017.420	I	5	E	6	12-01-95	1445	968510942	3	A	A	A	H	A	D	02	A	N	3	<	00	00	V2F	----	----	----	F<	E	A<
																				D	E	1	<	00	00	V1J	----	----	----	N<	B	A<
11	076		SD	R017.700	H	-	E	7	09-23-95	0940	968509564	5	A	A	A	H	A	E	01	A	E	1	<	00	00	43H	44G	----	----	N<	C	A<
11	076		SD	017.740	H	-	E	7	04-15-95	1705	968512207	5	A	A	A	H	D	F	01	C	E	1	<	00	01	44F	----	----	----	4<	C	A<
11	076		SD	017.740	H	-	E	7	06-10-95	0840	968506650	4	A	A	A	H	D	F	01	D	E	1	<	00	00	44B	----	----	----	F<	C	A<
11	076		SD	017.750	H	-	E	1	09-03-95	1700	968512097	5	A	A	A	H	D	F	01	C	E	1	<	00	01	44G	----	----	----	J<	C	A<
11	076		SD	R017.169	I	5	E	7	12-14-96	1903	968511724	1	A	C	A	H	A	D	02	A	S	3	<	00	01	V2F	44H	10H	----	6<	B	<E
																				D	E	1	<	00	02	V1F	10H	----	----	N<	B	A<
11	076		SD	R017.290	H	-	E	7	02-10-96	1730	968512614	3	A	B	A	H	A	D	02	D	N	3	<	00	00	V2F	----	----	----	N<	B	A<
																				D	E	1	<	00	00	V1F	----	----	----	N<	B	A<
11	076		SD	R017.420	I	5	W	1	03-03-96	2100	968512097	3	A	C	A	H	D	A	02	A	E	1	<	00	01	V2D	44D	----	----	N<	E	A<
																				D	W	1	<	00	02	V1F	----	----	----	N<	B	A<
11	076		SD	R017.420	I	5	E	1	06-23-96	1525	968512614	3	A	A	A	H	A	D	02	A	E	1	<	00	03	V2F	----	----	----	N<	B	A<
																				A	N	3	<	00	02	V1F	----	----	----	N<	B	A<
11	076		SD	R017.420	I	5	W	7	09-14-96	2125	968512663	3	A	C	A	H	D	D	02	A	W	1	<	00	04	V2F	----	----	----	N<	B	A<
																				A	E	1	<	00	01	V1D	18B	13B	----	N<	E	A<
11	076		SD	017.860	H	-	E	1	02-04-96	1300	968507304	6	A	A	A	H	D	F	02	C	E	1	<	00	01	44F	V2D	----	----	5<	N	A<
																				A	W	1	<	00	02	----	V1F	----	----	N<	B	A<
11	076		SD	R017.169	I	5	E	7	05-31-97	1806	968512378	6	A	A	A	H	A	D	02	A	S	1	<	00	03	V2F	----	----	----	5<	B	A<
																				D	E	2	<	00	03	V1F	----	----	----	N<	B	A<
11	076		SD	R017.210	H	-	W	6	10-24-97	0550	968506506	C	B	C	D	G	A	F	01	J	W	1	<	00	01	44F	----	----	----	N<	D	A<
11	076		SD	R017.230	H	-	W	2	05-26-97	1245	968507304	6	A	A	A	H	A	C	02	A	W	1	<	00	00	V2F	----	----	----	F<	B	A<
																				A	W	1	<	00	00	V1F	----	----	----	N<	A	A<
11	076		SD	R017.310	H	-	E	6	03-21-97	1410	968512529	6	A	A	A	H	A	D	02	A	E	1	<	00	01	V2F	----	----	----	N<	B	A<
																				D	N	3	<	00	01	V1F	----	----	----	N<	E	A<
11	076		SD	R017.400	H	-	E	1	05-18-97	1430	968512466	6	B	A	A	H	A	D	02	E	E	1	<	00	00	V2F	13B	----	----	N<	B	A<
																				A	N	3	<	00	01	V1F	----	----	----	N<	E	A<
11	076		SD	R017.410	H	-	W	6	01-03-97	1645	968510942	6	B	B	A	H	D	B	02	D	N	3	<	00	00	V2B	----	----	----	F<	E	A<
																				D	E	1	<	00	00	V1J	----	----	----	N<	E	A<
11	076		SD	R017.420	I	5	E	3	03-11-97	1645	968512663	6	A	A	A	H	A	D	02	A	N	3	<	00	00	V2F	----	----	----	N<	E	A<
																				A	E	1	<	00	00	V1F	----	----	----	F<	B	A<

A58

ND	DIST	RTES NO	U F	CO	P R E	LOC POST MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R C W C	T O C	NO MTR VEH	P T	D I R	V H I	S I	PERSN K	I	O S P	L O C	O S O	L O C	O S O	L O C	O S O	L O C	DA F 12	M O V	SD P 12
3	11	076		SD	R	017.420	I	5	E	5	03-27-97	1410	968512663	6	A	A	A	H	A	D	02	D	E	1	<	00	00	V2F		---		---		---		N<	B	A<
																						A	N	3	<	00	00	V1F		---		---		---		N<	E	A<
3	11	076		SD	R	017.420	I	5	E	7	06-07-97	1535	968511085	6	B	A	A	H	A	D	02	D	E	1	<	00	00	V2F		---		---		---		F<	B	A<
																						D	N	3	<	00	00	V1D		---		---		---		N<	E	A<
3	11	076		SD	R	017.420	I	5	E	4	06-18-97	1255	968506650	6	A	A	A	H	A	D	02	A	E	1	<	00	00	V2F		---		---		---		F<	B	A<
																						D	N	3	<	00	01	V1D		---		---		---		N<	E	A<
3	11	076		SD	R	017.420	I	5	E	7	07-26-97	1015	968506506	6	A	A	A	H	A	D	02	D	E	1	<	00	00	V2F		---		---		---		N<	B	A<
																						A	N	3	<	00	00	V1D		---		---		---		H<	E	A<
[illegible]	11	076		SD	R	017.169	I	5	W	1	05-03-98	1055	968509796	3	B	A	A	H	A	D	02	A	S	3	<	00	00	V2F		---		---		---		N<	E	A<
																						A	W	1	<	00	00	V1F		---		---		---		N<	B	A<
[illegible]	11	076		SD	R	017.240	H	-	W	1	07-19-98	0125	968513376	5	A	D	A	H	D	C	02	A	W	1	<	00	00	V2F		---		---		---		N<	B	G<
																						A	W	1	<	00	00	V1F		43H		---		---		N<	B	A<
[illegible]	11	076		SD	R	017.410	H	-	E	3	05-05-98	1255	968506650	5	B	A	A	H	A	C	02	D	E	1	<	00	00	V2J		---		---		---		F<	B	A<
																						D	E	1	<	00	00	V1J		---		---		---		N<	A	A<
[illegible]	11	076		SD	R	017.420	I	5	E	4	01-21-98	1533	968513376	6	B	A	A	H	A	D	02	D	E	1	<	00	02	V2F		---		---		---		5<	B	A<
																						D	N	3	<	00	04	V1D		---		---		---		H<	L	A<
[illegible]	11	076		SD	R	017.420	I	5	E	4	04-22-98	1835	968512378	D	B	A	A	H	A	D	02	D	E	1	<	00	00	V2F		---		---		---		N<	B	A<
																						A	N	3	<	00	00	V1F		---		---		---		N<	E	A<

A59

NO	ACC COUNT
2	1
3	6
4	12
5	13
6	11
7	6
8	11
9	5

A60

TASAS TABLE B SELECTIVE ACCIDENT RATE CALCULATION
REQUEST ACTIVITY REPORT

MESSAGE			DT	REQ NO	A S	L T	RTE	D I	TIME PERIOD FROM-TO		SELECT LOCATION BEGIN	END	S C	SEQ 123	R T	A P	AVE RATE	PC IN	PC FA	ADT MAIN	ADT XST	R T	RR UA	PR DT
*	*	*	11	0001	C	H	076	T	01/01/91-12/31/98	SD	017.866-SD	018.940	I										X	11
*	*	*	11	0002	C	H	076	T	01/01/91-12/31/91	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0003	C	H	076	T	01/01/92-12/31/92	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0004	C	H	076	T	01/01/93-12/31/93	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0005	C	H	076	T	01/01/94-12/31/94	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0006	C	H	076	T	01/01/95-12/31/95	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0007	C	H	076	T	01/01/96-12/31/96	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0008	C	H	076	T	01/01/97-12/31/97	SD	017.866-SD	018.940	I			P							X	11
*	*	*	11	0009	C	H	076	T	01/01/98-12/31/98	SD	017.866-SD	018.940	I			P							X	11

STEVE DENNY

DARNELL

A61

.-B 05-27-99

TASAS TABLE B SELECTIVE ACCIDENT RATE CALCULATION
FILE CONTROLS
DISTRICT 11

TOTAL REQUESTS READ:	9
TOTAL CARDS READ:	9
PROCESSED:	9
NOT PROCESSED/ERRORS:	0
NOT PROCESSED/TIME:	0
TOTAL REPORT/SPECIAL OUTPUT:	0
SPECIAL PRINT REQUESTS:	0
NOT PROCESSED/TIME:	0
REPORT LINES:	0

*** END AXR251 ***

A62

3-A 05-27-99 Pankey/Conser

TASAS TABLE B DISTRICT 11
SELECTIVE ACCIDENT RATE CALCULATION
ROUTE SEQUENCE

ATION	DESCRIPTION	RA GRP (RUS)	*-NUMBER OF ACCIDENTS/SIGNIFICANCE* TOT	FAT	INJ	F+I	MULTI VEH	WET	DARK	PER KLD INJ	*ADT * MAIN X-ST	TOTAL MV+ OR MVM	*-ACCIDENT RATE ACCS/MV+ OR MVM-* ACTUAL FAT	ACTUAL F+I	ACTUAL TOT	AVERAGE FAT	AVERAGE F+I	AVERAGE TOT
SD 01	17.866 THRU SD 018.939 1.074M 91-01-01 98-12-31 96 MO	H03 (R)	31 H95	1	15	16	9	2	16 H97	4 23	4.8	14.96	.067	1.07	2.07	.029	.77	1.47
SD 02	17.866 THRU SD 018.939 1.074M 91-01-01 91-12-31 12 MO	H03 (R)	7 H97	1	4 H92	5 H97	1	0	5 H97	4 9	4.8	1.86	.537	2.68	3.76	.029	.77	1.47
SD 03	17.866 THRU SD 018.939 1.074M 92-01-01 92-12-31 12 MO	H03 (R)	1	0	1	1	1	0	0	0 2	4.8	1.87	.000	.54	.54	.029	.77	1.47
SD 04	17.866 THRU SD 018.939 1.074M 93-01-01 93-12-31 12 MO	H03 (R)	3	0	2	2	2	0	1	0 3	4.8	1.86	.000	1.07	1.61	.029	.77	1.47
SD 05	17.866 THRU SD 018.939 1.074M 94-01-01 94-12-31 12 MO	H03 (R)	1	0	1	1	0	1	1	0 1	4.8	1.86	.000	.54	.54	.029	.77	1.47
SD 06	17.866 THRU SD 018.939 1.074M 95-01-01 95-12-31 12 MO	H03 (R)	3	0	2	2	1	0	1	0 2	4.8	1.86	.000	1.07	1.61	.029	.77	1.47
SD 07	17.866 THRU SD 018.939 1.074M 96-01-01 96-12-31 12 MO	H03 (R)	9 H99	0	3	3	3	1	3	0 4	4.8	1.87	.000	1.61	4.82	.029	.77	1.47
SD 08	17.866 THRU SD 018.939 1.074M 97-01-01 97-12-31 12 MO	H03 (R)	7 H97	0	2	2	1	0	5 H99	0 2	4.3	1.67	.000	1.20	4.20	.030	.78	1.48
SD 09	17.866 THRU SD 018.939 1.074M 98-01-01 98-12-31 12 MO	H03 (R)	0	0	0	0	0	0	0	0 0	5.4	2.12	.000	.00	.00	.029	.77	1.46

A63

TASAS TABLE B DISTRICT 11
SELECTIVE ACCIDENT RATE CALCULATION
END OF JOB

9 RECORDS WERE READ FROM TABB DURING THIS EXECUTION.

INPUT		OUTPUT	
0	SUMMARY REQUESTS	0	SUMMARY RECORDS
0	RECYCLE REQUESTS	0	RECYCLED RECORDS
9	REPORT RECORDS	9	RECORDS PRINTED
9	TOTAL	9	TOTAL

NO	DIST	RTES NO	U F	CO	P LOC R POST E MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH
2	11	076		SD	017.866	I	5	E	7	11-23-91	1450	968509796	3	A	A	A	H	<	D	02
2	11	076		SD	018.030	H	-	E	7	07-13-91	0255	968509996	4	E	D	A	H	D	E	01
2	11	076		SD	018.280	H	-	E	4	10-09-91	0200	968511023	5	A	D	A	H	A	E	01
2	11	076		SD	018.280	H	-	E	5	10-10-91	2120	968509664	1	A	D	A	H	A	E	01
2	11	076		SD	018.290	H	-	E	6	06-21-91	0130	968509996	1	A	D	<	H	A	E	01
2	11	076		SD	018.300	H	-	E	3	10-15-91	2100	968506506	5	E	D	A	H	D	E	01
2	11	076		SD	018.700	H	-	E	1	07-28-91	1340	968510596	5	A	A	A	H	D	F	01
3	11	076		SD	018.700	H	-	W	7	09-05-92	0700	968509599	6	A	A	A	H	D	B	02
4	11	076		SD	018.100	H	-	W	6	05-28-93	1345	968510920	3	A	A	A	H	D	D	02
4	11	076		SD	018.210	H	-	W	2	07-19-93	1715	968506433	3	A	A	A	H	D	H	02
4	11	076		SD	018.440	H	-	W	6	06-11-93	0140	968506650	1	A	E	A	H	D	E	01
5	11	076		SD	018.850	H	-	E	1	03-06-94	1720	968506433	5	B	B	B	H	D	E	01
5	11	076		SD	018.100	H	-	W	7	03-18-95	1240	968506650	3	A	A	A	H	D	D	02
5	11	076		SD	018.600	H	-	E	6	11-17-95	2050	968512216	6	A	D	A	H	D	E	01
5	11	076		SD	018.800	H	-	W	2	08-14-95	1145	968509821	6	A	A	A	H	D	E	01
7	11	076		SD	017.866	I	5	E	6	10-11-96	1920	968513091	6	A	D	A	H	A	D	02
7	11	076		SD	018.200	H	-	E	3	02-06-96	0645	968506506	6	A	A	A	H	D	B	03
[illegible]	11	076		SD	018.200	H	-	W	2	04-15-96	2035	968512466	5	A	D	A	H	A	E	01
[illegible]	11	076		SD	018.200	H	-	E	1	05-12-96	0830	968507304	5	A	A	A	H	D	E	01
[illegible]	11	076		SD	018.300	H	-	E	2	12-09-96	1630	968511430	5	C	A	B	H	D	E	01
[illegible]	11	076		SD	018.350	H	-	E	7	11-30-96	1955	968511325	1	A	D	A	H	D	E	01
[illegible]	11	076		SD	018.370	H	-	W	3	10-15-96	1430	968513091	6	A	A	A	H	D	E	01
[illegible]	11	076		SD	018.590	H	-	W	3	04-02-96	0750	968509664	4	A	A	A	H	D	F	01
[illegible]	11	076		SD	018.600	H	-	W	1	10-20-96	1450	968512663	6	A	A	A	H	D	E	02
[illegible]	11	076		SD	018.270	H	-	E	3	09-02-97	1950	968512375	4	A	D	A	H	D	E	01
[illegible]	11	076		SD	018.370	H	-	E	2	06-16-97	1700	968512378	5	A	A	A	D	D	E	01
	11	076		SD	018.430	H	-	E	7	10-04-97	0230	968511325	E	A	D	A	H	D	E	01
	11	076		SD	018.510	H	-	E	5	12-25-97	1600	968512375	4	A	A	A	H	D	E	01
	11	076		SD	018.520	H	-	W	5	10-30-97	0430	968513376	4	A	D	A	H	D	E	01
	11	076		SD	018.600	H	-	W	2	04-28-97	0540	968512466	5	A	B	A	H	D	F	02
	11	076		SD	018.800	H	-	W	7	02-22-97	1830	968512466	6	A	D	A	H	D	E	01

A65

P T	D I R	V H I	S I	PERSN K	PERSN I	O S P / L O C	O S O / L O C	O S O / L O C	O S O / L O C	OA F 12	M O V	SD P 12
A	N	2	<	00	01	V2F	----	----	----	N<	E	A<
D	E	1	<	00	01	V1F	----	----	----	N<	B	A<
D	E	1	<	00	00	11H	----	----	----	N<	C	G<
A	E	1	<	04	01	13H	24H	44H	----	N<	C	G<
D	E	1	<	00	01	24H	26H	----	----	5<	C	B<
D	E	1	<	00	04	28H	24H	----	----	5<	C	B<
A	E	1	<	00	01	24H	----	----	----	F<	C	A<
A	E	1	<	00	00	44H	24H	----	----	N<	B	A<
A	W	-	<	00	01	V2D	----	----	----	4<	N	A<
D	E	-	<	00	01	V1F	----	----	----	N<	B	A<
D	S	-	<	00	00	V2F	11J	----	----	F<	L	G<
2	W	-	<	00	00	V1F	----	----	----	N<	B	A<
L	S	-	<	00	01	V2F	----	----	----	N<	L	A<
A	W	-	<	00	00	V1F	----	----	----	N<	H	A<
D	W	-	<	00	02	23H	44F	----	----	5<	C	D<
A	E	-	<	00	01	18H	24H	----	----	N<	C	A<
A	S	2	<	00	00	V2F	----	----	----	4<	L	A<
A	W	1	<	00	00	V1F	----	----	----	N<	B	A<
D	E	1	<	00	01	24H	----	----	----	N<	C	A<
E	W	1	<	00	01	23H	44F	----	----	6<	C	A<
P	W	1	<	00	00	----	99F	----	----	<<	R	<<
D	N	2	<	00	02	V2F	44F	----	----	J<	B	A<
G	E	1	<	00	00	V1F	----	----	----	N<	B	A<
A	E	1	<	00	00	V2D	V3D	----	----	N<	N	A<
G	W	1	<	00	00	V1F	----	----	----	N<	B	A<
A	W	1	<	00	01	----	V1F	----	----	N<	B	A<
A	W	1	<	00	00	23B	----	----	----	N<	B	C<
C	E	1	<	00	00	24H	44H	----	----	N<	C	A<
A	E	1	<	00	00	23B	----	----	----	N<	C	A<
A	E	1	<	00	01	13H	----	----	----	6<	C	B<
G	W	1	<	00	00	11H	44H	----	----	N<	B	A<
G	W	1	<	00	00	44F	----	----	----	N<	C	A<
U	<	1	<	00	00	----	99F	----	----	<<	R	<<
A	E	1	<	00	00	24H	----	----	----	N<	B	A<
C	W	1	<	00	00	----	----	----	----	N<	B	A<
A	E	1	<	00	00	23B	44B	----	----	N<	C	A<
J	E	1	<	00	00	24H	28H	----	----	N<	B	A<
D	E	1	<	00	00	23B	44D	----	----	6<	C	AI
A	E	1	<	00	00	23B	43B	----	----	L<	C	A<
A	W	1	<	00	00	26H	23H	----	----	5<	M	A<
2	W	1	<	00	01	44F	V2D	----	----	N<	B	A<
D	E	1	<	00	00	----	V1F	----	----	N<	B	A<
J	W	1	<	00	01	23H	----	----	----	N<	C	A<

NO	ACC COUNT
)2	7
)3	1
)4	3
)5	1
)6	3
)7	9
)8	7

A66

PANKEY RD TO E/O GREG. CYN.

051008
Greg Cyn

TASAS TABLE B SELECTIVE ACCIDENT RATE CALCULATION
REQUEST ACTIVITY REPORT

MESSAGE	DT	REQ NO	A S	L T	RTE	D I	TIME PERIOD FROM - TO	SELECT LOCATION BEGIN	END	S C	SEQ 123	R T	A P	AVE RATE	PC IN	PC FA	ADT MAIN	ADT XST	R T	RR UA	PR DT
* * *	11	0001	C	H	076	T	01/01/91-12/31/98 SD	018.940-SD	021.440	I											11
* * *	11	0002	C	H	076	T	01/01/91-12/31/91 SD	018.940-SD	021.440	I			P								11
* * *	11	0003	C	H	076	T	01/01/92-12/31/92 SD	018.940-SD	021.440	I			P								11
* * *	11	0004	C	H	076	T	01/01/93-12/31/93 SD	018.940-SD	021.440	I			P								11
* * *	11	0005	C	H	076	T	01/01/94-12/31/94 SD	018.940-SD	021.440	I			P								11
* * *	11	0006	C	H	076	T	01/01/95-12/31/95 SD	018.940-SD	021.440	I			P								11
* * *	11	0007	C	H	076	T	01/01/96-12/31/96 SD	018.940-SD	021.440	I			P								11
* * *	11	0008	C	H	076	T	01/01/97-12/31/97 SD	018.940-SD	021.440	I			P								11
* * *	11	0009	C	H	076	T	01/01/98-12/31/98 SD	018.940-SD	021.440	I			P								11

A67

TASAS TABLE B SELECTIVE ACCIDENT RATE CALCULATION
FILE CONTROLS
DISTRICT 11

-B 04-19-99

TOTAL REQUESTS READ:	9
TOTAL CARDS READ:	9
PROCESSED:	9
NOT PROCESSED/ERRORS:	0
NOT PROCESSED/TIME:	0
TOTAL REPORT/SPECIAL OUTPUT:	0
SPECIAL PRINT REQUESTS:	0
NOT PROCESSED/TIME:	0
REPORT LINES:	0

*** END AXR251 ***

A68

TASAS TABLE B DISTRICT 11
SELECTIVE ACCIDENT RATE CALCULATION
ROUTE SEQUENCE

A T I O N	D E S C R I P T I O N	RA GRP (RUS)	NUMBER OF ACCIDENTS/SIGNIFICANCE TOT	FAT	INJ	F+I	MULTI VEH	WET	DARK	PER KLD INJ	ADT MAIN X-ST	TOTAL MV+ OR MVM	ACCIDENT RATE ACCS/MV+ OR MVM ACTUAL FAT	ACTUAL F+I	ACTUAL TOT	AVERAGE FAT	AVERAGE F+I	AVERAGE TOT
D 1	18.940 THRU SD 021.439 2.500M 91-01-01 98-12-31 96 MO	H03 (R)	87 H99	2	43 H99	45 H99	26	4	31 H97	2 74	4.7	33.95	.059	1.33	2.56	.030	.77	1.48
D 2	18.940 THRU SD 021.439 2.500M 91-01-01 91-12-31 12 MO	H03 (R)	7	0	5	5	3	0	2	0 10	4.8	4.38	.000	1.14	1.60	.029	.77	1.47
D 3	18.940 THRU SD 021.439 2.500M 92-01-01 92-12-31 12 MO	H03 (R)	7	0	5	5	5	0	4	0 12	4.8	4.39	.000	1.14	1.59	.029	.77	1.47
D 4	18.940 THRU SD 021.439 2.500M 93-01-01 93-12-31 12 MO	H03 (R)	10	0	7 H92	7 H92	3	0	4	0 13	4.8	4.38	.000	1.60	2.28	.029	.77	1.47
D 5	18.940 THRU SD 021.439 2.500M 94-01-01 94-12-31 12 MO	H03 (R)	9	0	5	5	2	0	2	0 8	4.8	4.38	.000	1.14	2.05	.029	.77	1.47
D 6	18.940 THRU SD 021.439 2.500M 95-01-01 95-12-31 12 MO	H03 (R)	13 H97	1	8 H97	9 H97	2	1	4	1 14	4.8	4.33	.231	2.08	3.00	.029	.77	1.47
D 7	18.940 THRU SD 021.439 2.500M 96-01-01 96-12-31 12 MO	H03 (R)	8	0	4	4	4	0	3	0 5	4.8	4.35	.000	.92	1.84	.029	.77	1.47
D 8	18.940 THRU SD 021.439 2.500M 97-01-01 97-12-31 12 MO	H03 (R)	19 H99	1	7 H95	8 H97	4	1	7 H97	1 10	4.3	3.88	.258	2.06	4.90	.030	.78	1.48
D 9	18.940 THRU SD 021.439 2.500M 98-01-01 98-12-31 12 MO	H03 (R)	14 H99	0	2	2	3	2	5 H90	0 2	4.3	3.88	.000	.52	3.61	.030	.78	1.48

A69

TASAS TABLE B DISTRICT 11
SELECTIVE ACCIDENT RATE CALCULATION
END OF JOB

9 RECORDS WERE READ FROM TABB DURING THIS EXECUTION.

INPUT		OUTPUT	
0	SUMMARY REQUESTS	0	SUMMARY RECORDS
0	RECYCLE REQUESTS	0	RECYCLED RECORDS
9	REPORT RECORDS	9	RECORDS PRINTED
9	TOTAL	9	TOTAL

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TABLE B ACCIDENT RECORDS 04-19-99

DIST	RTES U NO F	CO	P R E LOC POST MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH	P T	D I R	V H I	S I	PERSN K	I	O S P	L O C	O S O	L O C	O S O	L O C	O S O	L O C	OA F 12	M O V	SD P 12
11	076	SD	019.330	H	-	W	3	05-07-91	1045	968510039	5	A	A	A	H	A	F	01	G	W	1	<	00	00	44F	----	----	----	N<	B	A<
																			O	<	1	<	00	00	---	99F	----	----	<<	R	<<
11	076	SD	019.410	H	-	E	7	09-14-91	2300	968510782	1	A	D	A	H	D	A	02	A	E	1	<	00	02	V2D	---	---	----	6<	N	B<
																			D	W	1	<	00	02	V1F	---	---	---	N<	B	A<
11	076	SD	019.450	H	-	E	7	11-23-91	1325	968510969	4	A	A	A	H	D	F	01	C	E	1	<	00	01	44H	27H	---	---	5<	C	A<
11	076	SD	020.520	H	-	W	1	06-02-91	1255	968509599	6	A	A	A	H	D	A	02	A	W	1	<	00	00	V2D	---	---	---	6<	I	A<
																			A	E	1	<	00	01	V1F	---	---	---	N<	B	A<
11	076	SD	020.590	H	-	W	1	08-11-91	1800	968506506	6	A	A	A	B	A	F	01	D	W	1	<	00	02	44F	---	---	---	F<	I	A<
11	076	SD	020.900	H	-	E	1	07-14-91	1700	968508917	5	A	A	A	H	A	E	01	A	E	1	<	00	02	11H	---	---	---	F<	C	G<
11	076	SD	021.300	H	-	E	2	08-12-91	2120	968506506	6	A	D	A	B	D	B	02	D	E	1	<	00	00	V2D	---	---	---	F<	N	G<
																			E	W	1	<	00	00	V1F	---	---	---	<<	B	A<
11	076	SD	019.060	H	-	W	7	04-18-92	2000	968506433	1	A	D	A	H	D	A	02	A	W	1	<	00	01	V2D	---	---	---	5<	N	B<
																			D	E	1	<	00	02	V1F	---	---	---	N<	B	A<
11	076	SD	019.070	H	-	W	7	01-25-92	1235	968508917	5	A	A	A	H	A	A	02	A	W	1	<	00	02	V2D	---	---	---	F<	N	A<
																			D	E	1	<	00	01	V1F	---	---	---	N<	B	A<
11	076	SD	019.070	H	-	W	3	12-22-92	1745	968511888	6	A	D	A	H	D	B	02	A	W	-	<	00	00	V2D	---	---	---	N<	N	G<
																			A	E	-	<	00	00	V1H	---	---	---	N<	B	A<
11	076	SD	019.090	H	-	W	5	01-16-92	2130	968509796	1	A	D	A	H	A	F	01	D	W	1	<	00	01	44B	24B	---	---	6<	C	B<
11	076	SD	019.090	H	-	W	1	09-27-92	1045	968508562	5	A	A	A	H	D	B	02	D	W	-	<	00	00	V2D	---	---	---	6<	N	A<
																			A	E	-	<	00	00	V1F	---	---	---	<<	B	A<
11	076	SD	019.120	H	-	E	4	09-09-92	2220	968509664	4	A	D	A	H	D	E	01	A	E	-	<	00	04	28H	---	---	---	F<	C	G<
11	076	SD	020.200	H	-	E	2	03-30-92	0745	968507224	6	B	A	A	H	A	B	02	G	E	1	<	00	00	V2D	---	---	---	N<	N	A<
																			A	W	1	<	00	01	V1F	---	---	---	N<	B	A<
11	076	SD	019.090	H	-	E	4	03-10-93	1700	968506433	5	A	D	A	H	A	E	01	A	E	-	<	00	02	24H	43H	---	---	N<	C	A<
11	076	SD	019.090	H	-	E	5	04-15-93	0640	968509996	4	B	A	A	H	A	E	01	A	E	-	<	00	00	13H	24H	---	---	5<	C	A<
11	076	SD	019.120	H	-	E	7	06-12-93	2035	968511888	1	A	D	A	H	A	E	01	A	E	-	<	00	00	13H	---	---	---	6<	C	B<
11	076	SD	019.380	H	-	W	6	04-02-93	2200	968510616	5	A	D	A	H	D	E	01	A	W	-	<	00	04	26H	---	---	---	N<	C	A<
11	076	SD	019.393	I	5	W	4	06-16-93	1555	968510942	3	A	A	A	H	A	E	02	A	S	-	<	00	00	---	---	---	---	F<	E	G<
																			C	W	-	<	00	01	23H	44H	---	---	N<	B	A<
11	076	SD	019.960	H	-	W	5	02-25-93	1230	968509599	6	B	A	A	H	A	D	02	D	W	1	<	00	00	V2D	---	---	---	N<	I	A<
																			A	W	1	<	00	00	V1D	---	---	---	N<	E	A<
11	076	SD	019.980	H	-	E	6	05-07-93	1650	968506433	5	A	A	A	H	D	C	02	A	E	-	<	00	03	V2F	---	---	---	F<	B	A<
																			A	E	-	<	00	00	V1F	12H	---	---	N<	H	A<
11	076	SD	020.100	H	-	E	7	02-13-93	1950	968508715	1	A	D	A	H	D	E	01	A	E	1	<	00	01	28H	---	---	---	4<	C	B<
11	076	SD	020.940	H	-	W	7	08-28-93	1540	968506433	5	A	A	A	H	D	F	01	C	W	-	<	00	01	44H	---	---	---	4<	C	C<
11	076	SD	021.010	H	-	W	7	08-28-93	1541	968508715	1	A	A	A	H	D	F	01	C	W	-	<	00	01	44H	---	---	---	5<	C	B<
11	076	SD	019.090	H	-	W	7	03-26-94	1345	968510637	6	A	A	A	H	D	A	02	A	W	-	<	00	02	V2D	---	---	---	N<	B	A<
																			D	E	-	<	00	00	V1F	---	---	---	N<	B	A<
11	076	SD	019.090	H	-	E	7	07-16-94	1030	968509840	6	A	A	A	H	D	F	01	C	E	1	<	00	01	44F	23H	---	---	L<	B	A<
11	076	SD	019.100	H	-	W	1	10-16-94	1815	968511888	5	A	A	A	H	A	A	02	A	W	1	<	00	00	V2D	---	---	---	6<	B	G<
																			D	E	1	<	00	00	V1F	---	---	---	N<	B	A<
11	076	SD	019.110	H	-	E	3	06-21-94	0545	968506650	5	A	A	A	H	A	F	01	A	E	1	<	00	02	44H	24H	13H	---	4<	C	G<
11	076	SD	019.350	H	-	W	4	12-21-94	0020	968509599	4	A	D	A	H	D	E	01	A	W	1	<	00	00	23H	44F	---	---	L<	C	A<
11	076	SD	019.670	H	-	W	6	09-09-94	1655	968506433	6	A	A	A	H	D	E	01	C	W	1	<	00	01	24H	44H	---	---	5<	C	A<
11	076	SD	019.920	H	-	E	1	10-16-94	0030	968509664	1	A	D	A	H	D	E	01	D	E	1	<	00	00	27H	43H	---	---	4<	C	B<
11	076	SD	020.800	H	-	W	2	12-19-94	0710	968507304	5	A	A	A	H	D	F	01	G	W	1	<	00	00	44H	---	---	---	L<	C	A<
																			Q	E	1	<	00	00	---	---	---	---	<<	N	<<
11	076	SD	021.320	H	-	W	5	11-17-94	1430	968509796	5	B	A	A	H	D	F	01	A	W	1	<	00	02	44B	---	---	---	4<	C	A<
11	076	SD	019.380	H	-	W	5	09-14-95	1830	968510601	5	A	A	A	H	D	F	01	G	W	1	<	00	02	44H	---	---	---	N<	C	A<
																			O	<	1	<	00	00	---	99H	---	---	<<	R	<<
11	076	SD	019.380	H	-	W	1	09-24-95	2130	968509664	1	A	D	A	H	D	E	01	A	W	1	<	00	00	23H	---	---	---	5<	C	B<

A71

NO	DIST	RTES NO	U F	CO	P LOC R POST E MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	C	R W C	T O C	NO MTR VEH
6	11	076		SD	019.380	H	-	W	4	10-18-95	1700	968509685	5	A	A	A	H	D	F	01
6	11	076		SD	019.830	H	-	E	3	11-07-95	2220	968512111	1	A	D	A	H	D	E	01
6	11	076		SD	019.850	H	-	E	1	03-19-95	1120	968506650	5	A	A	A	H	D	E	01
6	11	076		SD	020.220	H	-	W	1	12-10-95	1225	968509664	6	A	A	A	H	D	E	01
6	11	076		SD	020.690	H	-	W	7	08-19-95	1520	968512216	6	A	A	A	H	D	H	01
6	11	076		SD	020.700	H	-	W	1	10-29-95	0925	968507304	6	B	A	A	H	D	E	01
6	11	076		SD	020.920	H	-	E	6	05-05-95	1257	968510596	5	B	A	A	H	D	F	01
6	11	076		SD	021.010	H	-	E	1	02-19-95	1315	968507304	6	A	A	A	H	D	E	01
6	11	076		SD	021.200	H	-	W	5	12-07-95	1645	968512466	6	A	D	A	H	D	A	02
5	11	076		SD	021.250	H	-	W	5	01-05-95	1040	968507615	6	B	A	B	H	D	E	01
5	11	076		SD	021.300	H	-	W	4	11-22-95	1835	968510252	6	A	D	A	H	D	B	02
7	11	076		SD	019.190	H	-	E	2	04-29-96	1827	968512466	5	A	A	A	H	A	F	01
7	11	076		SD	019.370	H	-	W	7	05-11-96	1500	968512216	6	A	A	A	B	D	E	01
7	11	076		SD	019.393	I	5	W	7	05-25-96	0001	968510942	4	A	D	A	H	D	F	01
7	11	076		SD	019.820	H	-	W	1	08-04-96	1540	968512529	4	A	A	A	H	D	F	02
7	11	076		SD	020.120	H	-	W	7	12-21-96	2140	968512663	6	A	D	A	H	D	D	02
	11	076		SD	020.520	H	-	W	7	04-20-96	1630	968512663	5	A	A	A	H	D	E	01
	11	076		SD	020.600	H	-	E	4	01-03-96	0600	968509664	3	A	B	A	H	D	D	02
	11	076		SD	020.900	H	-	E	6	03-29-96	0900	968509664	6	A	A	A	H	D	E	02
	11	076		SD	019.120	H	-	E	1	11-02-97	1205	968511085	5	A	A	D	H	D	F	01
	11	076		SD	019.160	H	-	E	3	11-25-97	1620	968512097	1	A	A	A	H	D	F	01
	11	076		SD	019.360	H	-	W	6	07-04-97	1809	968512378	5	A	A	A	D	D	F	01
	11	076		SD	019.370	H	-	W	7	02-01-97	2110	968512663	4	A	D	A	H	D	F	01
	11	076		SD	019.370	H	-	W	7	04-12-97	1720	968512111	5	A	A	A	H	A	F	01
	11	076		SD	019.820	H	-	E	1	05-25-97	1415	968512378	1	A	A	A	H	D	E	01
	11	076		SD	019.820	H	-	E	7	08-09-97	2055	968513091	4	A	D	A	H	D	E	01
	11	076		SD	019.920	H	-	E	1	11-30-97	0200	968513376	1	B	D	A	H	D	E	01
	11	076		SD	019.990	H	-	E	2	05-26-97	1800	968511430	C	A	A	A	H	D	E	02
	11	076		SD	020.020	H	-	W	6	10-10-97	1235	968509796	5	A	A	A	H	A	B	05
	11	076		SD	020.320	H	-	W	3	07-15-97	1915	968511477	4	A	A	A	H	D	F	01
	11	076		SD	020.850	H	-	W	1	07-13-97	0230	968512190	5	A	D	A	H	D	E	01
	11	076		SD	020.890	H	-	E	6	06-13-97	2500	968512939	C	B	D	A	D	D	E	01
	11	076		SD	021.020	H	-	W	3	04-29-97	2349	968513091	4	A	D	A	H	D	E	01
	11	076		SD	021.190	H	-	W	5	11-27-97	1625	968512378	4	B	A	D	F	D	E	01
	11	076		SD	021.210	H	-	W	5	09-25-97	1615	968512529	3	B	A	B	H	D	A	02
	11	076		SD	021.210	H	-	W	1	09-28-97	1915	968512378	6	A	D	A	H	D	B	02
	11	076		SD	021.240	H	-	W	2	08-04-97	0615	968507304	5	A	A	A	H	D	F	01
	11	076		SD	021.400	H	-	W	3	10-28-97	0820	968510782	6	A	A	A	H	D	E	01

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P T	D I R	V H I	S I	PERSN K	I	O L S O P C	O L S O O C	O L S O O C	O L S O O C	OA F 12	M O V	SD P 12
C	W	1	<	00	02	44F	----	----	----	N<	B	A<
D	E	1	<	00	01	27H	26H	28H	----	6<	C	B<
C	E	1	<	00	01	23H	44H	----	----	6<	C	A<
C	W	1	<	01	00	27B	44B	----	----	5<	C	A<
D	W	1	<	00	01	99H	44D	----	----	F<	C	C<
M	W	1	<	00	00	43H	----	----	----	F<	C	A<
G	E	1	<	00	00	44H	23H	----	----	P<	C	A<
C	E	1	<	00	01	27H	29H	24H	44H	4<	I	A<
A	W	1	<	00	03	V2D	----	----	----	N<	N	A<
2	E	1	<	00	01	V1F	----	----	----	N<	B	A<
M	W	1	<	00	00	24H	11H	----	----	4<	C	G<
M	E	1	<	00	01	V2F	----	----	----	N<	B	A<
A	W	1	<	00	01	V1D	----	----	----	5<	N	A<
C	E	1	<	00	01	44F	----	----	----	N<	B	A<
C	W	1	<	00	01	23H	44H	----	----	N<	B	A<
D	W	1	<	00	00	44H	23H	----	----	J<	C	A<
C	W	1	<	00	02	44F	V2B	----	----	N<	C	A<
C	W	1	<	00	00	----	V1B	44B	----	N<	C	A<
A	W	1	<	00	00	V2D	----	----	----	N<	N	A<
A	E	1	<	00	00	V1F	----	----	----	N<	B	A<
A	W	1	<	00	00	43H	----	----	----	N<	B	A<
D	N	2	<	00	00	V2F	----	----	----	F<	E	A<
C	E	1	<	00	01	V1F	44H	----	----	N<	B	A<
G	E	1	<	00	00	----	----	----	----	N<	N	A<
G	W	1	<	00	00	42G	----	----	----	N<	B	A<
C	E	1	<	00	01	44H	----	----	----	N<	C	A<
A	E	1	<	00	00	44H	13H	----	----	6<	C	B<
C	W	1	<	00	02	44F	----	----	----	N<	B	A<
D	W	1	<	00	00	44F	----	----	----	N<	C	A<
C	W	1	<	00	01	44F	----	----	----	N<	B	A<
A	E	1	<	00	00	11H	----	----	----	4<	C	B<
D	E	1	<	00	00	43H	----	----	----	N<	B	G<
A	E	1	<	00	00	27H	----	----	----	6<	C	B<
J	E	1	<	00	00	----	----	----	----	N<	B	A<
A	W	1	<	00	00	42F	----	----	----	N<	B	A<
G	W	1	<	00	00	V2D	V3D	V4D	V5D	N<	B	A<
F	E	1	<	00	00	V1F	----	----	----	N<	B	A<
D	W	1	<	00	00	----	V1F	----	----	N<	A	A<
G	W	1	<	00	00	----	V1F	----	----	N<	A	A<
G	E	1	<	00	00	----	V1F	----	----	N<	B	A<
A	W	1	<	00	00	44B	----	----	----	N<	C	A<
J	W	1	<	00	01	13B	44B	24B	----	6<	C	A<
D	E	1	<	00	01	24H	29H	44H	----	J<	C	<F
A	W	1	<	00	00	23H	44G	----	----	L<	B	A<
D	W	1	<	01	02	23H	44H	----	----	N<	R	G<
A	E	1	<	00	00	V2D	----	----	----	<<	E	G<
G	W	1	<	00	01	V1F	26B	44B	27B	<<	B	A<
C	W	1	<	00	01	V2D	44D	----	----	N<	N	A<
A	E	1	<	00	00	V1F	----	----	----	N<	B	A<
G	W	1	<	00	00	44H	----	----	----	6<	C	A<
H	W	1	<	00	00	28H	----	----	----	N<	G	A<

TABLE B ACCIDENT RECORDS

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DIST	RTES NO	U F	CO	P R E	LOC POST MILE	F T	I R L	S O H	D A Y	ACCIDENT DATE MO DA YR	TIME HHMM	COMMON ACCIDENT NUMBER	P C F	ENVIR COND W	L	S	R C	R W C	T O C	NO MTR VEH
11	076		SD		019.090	H	-	W	7	06-13-98	1535	968512378	4	A	A	A	H	D	E	01
11	076		SD		019.100	H	-	E	3	03-24-98	1005	968506506	5	A	A	A	H	D	E	01
11	076		SD		019.140	H	-	E	2	07-13-98	0920	968509796	5	A	A	A	H	D	F	01
11	076		SD		019.360	H	-	W	1	04-26-98	1250	968512111	5	A	A	A	H	A	E	01
11	076		SD		019.370	H	-	W	6	09-25-98	2255	968512190	1	B	D	A	H	D	E	01
11	076		SD		019.510	H	-	W	3	07-14-98	1855	968512939	3	A	A	A	H	D	D	02
11	076		SD		020.020	H	-	E	7	07-11-98	0200	968509633	4	A	D	A	H	D	E	01
11	076		SD		020.300	H	-	E	7	02-14-98	2100	968512375	1	C	D	B	B	A	E	01
11	076		SD		020.300	H	-	E	4	07-22-98	1000	968506506	5	B	A	A	H	D	H	01
11	076		SD		020.510	H	-	W	6	08-21-98	1750	968512614	6	A	A	A	H	D	E	01
11	076		SD		020.540	H	-	E	4	04-29-98	1230	968509664	6	A	A	A	H	D	B	02
11	076		SD		020.800	H	-	E	7	06-13-98	2025	968512529	5	A	D	A	H	D	H	01
11	076		SD		020.900	H	-	E	3	02-17-98	1100	968506650	6	A	A	A	H	D	B	02
11	076		SD		021.040	H	-	W	7	01-10-98	2040	968512939	1	B	D	B	H	D	E	01

P T	D I R	V H I	S I	PERSN K	I	OS P / LO C	OS O / LO C	OS O / LO C	OS O / LO C	OA F 12	M O V	SD P 12
C	W	1	<	00	01	24B	43B	44B	----	N<	M	A<
G	E	1	<	00	01	24H	44H	28H	----	N<	C	A<
G	E	1	<	00	00	44F	----	----	----	N<	B	A<
A	W	1	<	00	00	23H	44F	----	----	N<	C	A<
D	W	1	<	00	00	24H	44H	----	----	5<	C	B<
D	S	2	<	00	00	V2F	----	----	----	N<	L	A<
A	W	1	<	00	00	V1H	----	----	----	N<	B	A<
D	E	1	<	00	00	43H	44H	----	----	<<	C	A<
A	E	1	<	00	00	23B	----	----	----	4<	C	B<
G	E	1	<	00	00	----	----	----	----	N<	C	A<
O	<	1	<	00	00	24H	----	----	----	<<	R	<<
A	W	1	<	00	00	27B	----	----	----	N<	C	A<
2	E	1	<	00	00	V2D	----	----	----	N<	N	A<
2	W	1	<	00	00	V1F	----	----	----	N<	B	A<
A	E	1	<	00	00	V2F	----	----	----	N<	B	A<
W	<	-	<	00	00	V1-	----	----	----	<<	<	<<
G	E	1	<	00	00	V2D	----	----	----	N<	N	A<
I	W	1	<	00	00	V1F	23H	----	----	N<	B	A<
D	W	1	<	00	00	11H	----	----	----	4<	C	B<

A73

SITE CODE :01910001
Location :Pala Rd e/o I-15
City :Pala Mesa Village

Thurs. 4/1/99

EB

TIME BEGIN	CARS	3 AXLE	4 AXLE	5+ AXLE	TOTAL
12:00AM	1	0	0	0	
:15	2	0	0	1	
:30	2	0	0	0	
:45	1	0	0	0	
TOTALS	6	0	0	1	7
1:00AM	2	0	0	0	
:15	1	0	0	0	
:30	2	0	0	0	
:45	2	0	0	0	
TOTALS	7	0	0	0	7
2:00AM	0	0	0	0	
:15	0	0	0	0	
:30	0	0	0	0	
:45	0	0	0	0	
TOTALS	0	0	0	0	0
3:00AM	0	0	0	0	
15	1	0	0	0	
:30	1	0	0	0	
:45	0	0	0	0	
TOTALS	2	0	0	0	2
4:00AM	0	0	0	0	
:15	0	0	0	0	
:30	1	0	0	0	
:45	10	0	0	2	
TOTALS	11	0	0	2	13
5:00AM	2	0	0	0	
:15	11	0	0	1	
:30	3	0	0	0	
:45	6	0	0	2	
TOTALS	22	0	0	3	25
6:00AM	12	0	0	0	
:15	20	0	0	2	
:30	15	0	0	3	
:45	26	0	0	4	
TOTALS	73	0	0	9	82
7:00AM	15	0	0	6	
.15	20	0	0	5	
:30	24	1	0	5	
:45	25	0	0	6	
TOTALS	84	1	0	22	107
8:00AM	25	0	0	5	
:15	20	1	1	6	
:30	28	0	1	8	
:45	24	0	1	9	
TOTALS	97	1	3	28	129
9:00AM	40	0	1	5	
:15	38	1	1	6	
:30	29	0	0	11	
:45	30	1	0	9	
TOTALS	137	2	2	31	172
10:00AM	30	0	0	11	
:15	36	0	1	8	
:30	40	0	0	11	
:45	35	0	0	10	
TOTALS	141	0	1	40	182
11:00AM	35	0	0	9	
:15	22	1	0	10	
:30	24	0	1	11	
:45	25	0	1	10	
TOTALS	106	5	2	40	153

WB

TIME BEGIN	CARS	3 AXLE	4 AXLE	5+ AXLE	TOTAL
12:00AM	0	0	0	0	
:15	1	0	0	0	
:30	0	0	0	0	
:45	0	0	0	0	
TOTALS	1	0	0	0	1
1:00AM	0	0	0	0	
:15	0	0	0	0	
:30	0	0	0	0	
:45	1	0	0	0	
TOTALS	1	0	0	0	1
2:00AM	0	0	0	0	
:15	1	0	0	0	
:30	0	0	0	0	
:45	1	0	0	0	
TOTALS	2	0	0	0	2
3:00AM	0	0	0	0	
:15	1	0	0	0	
:30	0	0	0	0	
:45	0	0	0	0	
TOTALS	1	0	0	0	1
4:00AM	0	0	0	0	
:15	2	0	0	0	
:30	2	0	0	0	
:45	3	0	0	0	
TOTALS	7	0	0	0	7
5:00AM	3	0	0	0	
:15	10	0	0	0	
:30	12	0	0	2	
:45	15	1	0	3	
TOTALS	40	1	0	5	46
6:00AM	25	0	0	2	
:15	30	0	0	3	
:30	10	0	0	5	
:45	15	0	1	6	
TOTALS	80	0	1	16	97
7:00AM	25	0	0	2	
:15	20	0	0	5	
:30	28	0	0	3	
:45	30	0	0	4	
TOTALS	103	0	0	11	114
8:00AM	35	0	0	3	
:15	30	0	0	6	
:30	22	0	0	5	
:45	18	0	0	7	
TOTALS	105	0	0	21	126
9:00AM	25	0	0	5	
:15	26	0	0	6	
:30	25	0	0	1	
:45	26	0	0	5	
TOTALS	102	0	0	17	119
10:00AM	25	0	0	6	
:15	30	0	0	7	
:30	34	0	0	8	
:45	25	1	0	10	
TOTALS	114	1	0	31	146
11:00AM	25	0	0	8	
:15	15	0	0	6	
:30	20	0	0	7	
:45	21	0	0	3	
TOTALS	81	0	0	24	105

SITE CODE .01910001

12:00PM	20	0	0	10	
:15	22	0	1	8	
:30	26	0	1	9	
:45	20	0	0	6	
TOTALS	88	0	2	33	123
1:00PM	35	0	0	5	
:15	25	0	1	10	
:30	26	0	0	10	
:45	24	0	0	10	
TOTALS	110	0	1	35	146
2:00PM	25	0	0	11	
:15	30	0	0	10	
:30	25	0	0	12	
:45	30	0	0	10	
TOTALS	110	0	0	43	153
3:00PM	30	0	0	25	
:15	25	0	0	10	
:30	24	0	0	11	
:45	26	0	0	8	
TOTALS	105	0	0	54	159
4:00PM	35	0	0	10	
:15	22	0	1	6	
:30	24	0	0	7	
:45	20	0	1	8	
TOTALS	101	0	2	31	134
5:00PM	30	0	0	8	
:15	24	0	1	9	
:30	22	0	0	6	
:45	26	0	0	7	
TOTALS	102	0	1	30	133
6:00PM	23	0	0	10	
:15	20	0	1	8	
:30	10	0	0	6	
:45	15	0	0	7	
TOTALS	68	0	1	31	100
7:00PM	15	0	0	5	
:15	13	0	0	6	
:30	11	0	0	2	
:45	12	0	0	2	
TOTALS	51	0	0	15	66
8:00PM	10	0	0	1	
:15	5	0	1	0	
:30	3	0	1	0	
:45	15	0	0	0	
TOTALS	33	0	2	1	36
9:00PM	8	0	0	0	
:15	6	0	0	0	
:30	10	0	0	0	
:45	3	0	0	0	
TOTALS	27	0	0	0	27
10:00PM	4	0	0	0	
:15	10	0	0	0	
:30	6	0	0	0	
:45	1	0	0	0	
TOTALS	21	0	0	0	21
11:00PM	1	0	0	0	
:15	2	0	1	0	
:30	3	0	0	1	
:45	4	0	0	0	
TOTALS	10	0	1	1	12
24HR TOTALS	1512	9	18	450	1989

12:00PM	22	0	0	4	
:15	25	0	0	2	
:30	30	1	1	5	
:45	22	0	0	6	
TOTALS	99	1	1	17	118
1:00PM	20	0	0	5	
:15	15	0	0	6	
:30	14	2	0	7	
:45	20	0	0	3	
TOTALS	69	2	0	21	92
2:00PM	25	0	0	6	
:15	20	1	0	5	
:30	35	0	0	6	
:45	20	0	0	8	
TOTALS	100	1	0	25	126
3:00PM	20	0	0	6	
:15	25	0	0	5	
:30	25	0	0	7	
:45	22	0	2	6	
TOTALS	92	0	2	24	118
4:00PM	40	0	0	3	
:15	33	0	0	5	
:30	32	0	0	6	
:45	25	0	0	10	
TOTALS	130	0	0	24	154
5:00PM	33	0	0	11	
:15	20	0	0	8	
:30	22	0	0	9	
:45	18	0	0	4	
TOTALS	93	0	0	32	125
6:00PM	20	0	1	5	
:15	22	0	0	6	
:30	10	0	0	4	
:45	18	0	0	3	
TOTALS	70	0	1	18	89
7:00PM	15	0	0	4	
:15	12	0	0	3	
:30	11	0	0	2	
:45	9	0	0	2	
TOTALS	47	0	0	11	58
8:00PM	11	0	0	3	
:15	10	0	0	2	
:30	2	0	0	0	
:45	15	0	0	0	
TOTALS	38	0	0	5	43
9:00PM	6	0	0	0	
:15	5	0	0	0	
:30	8	0	0	0	
:45	3	0	0	0	
TOTALS	22	0	0	0	22
10:00PM	4	0	0	0	
:15	6	1	0	0	
:30	5	0	0	1	
:45	1	0	0	0	
TOTALS	16	1	0	1	18
11:00PM	1	0	0	0	
:15	2	0	0	0	
:30	3	0	0	0	
:45	2	0	0	0	
TOTALS	8	0	0	0	8
24HR TOTALS	1421	7	5	303	1736

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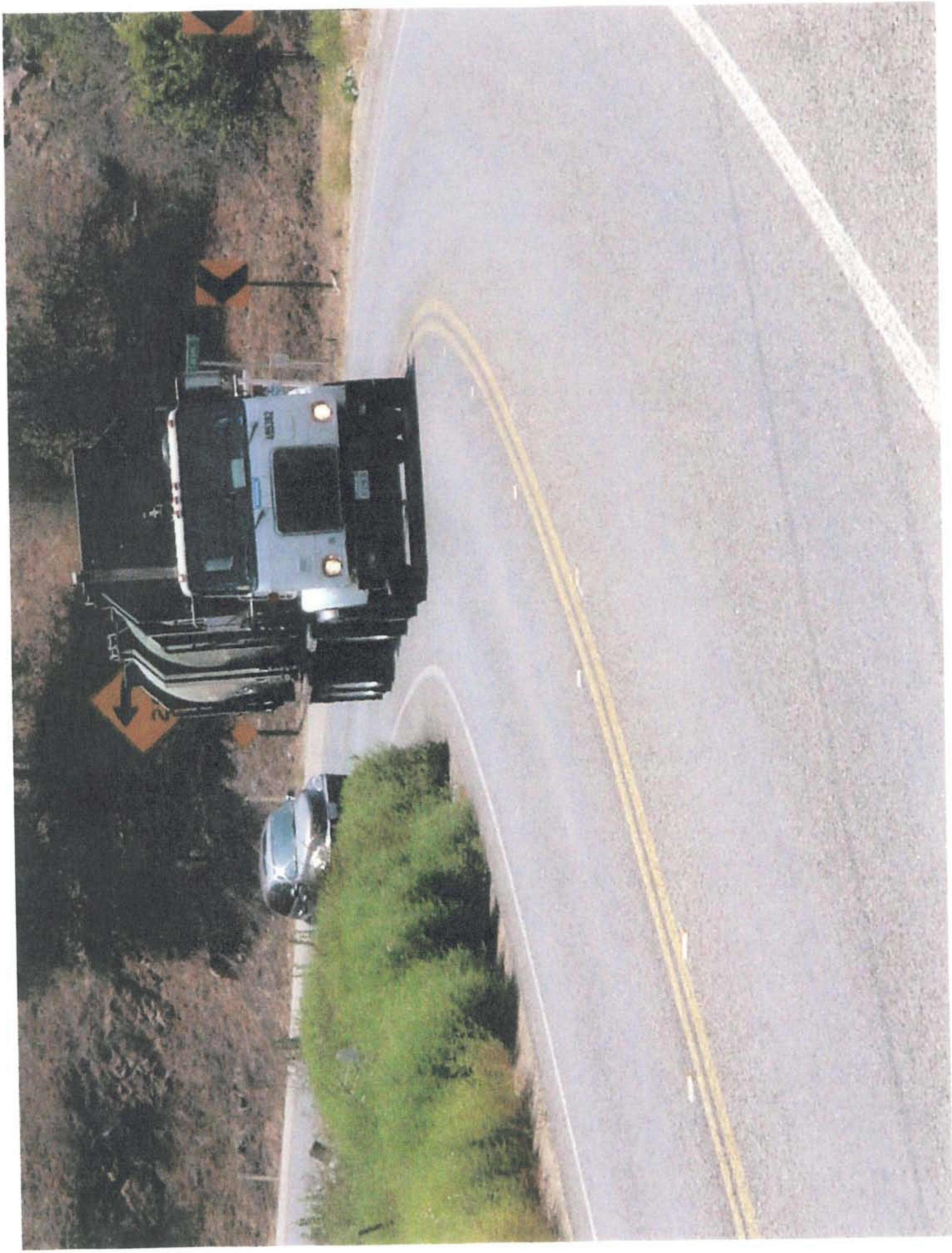
3735

A-76



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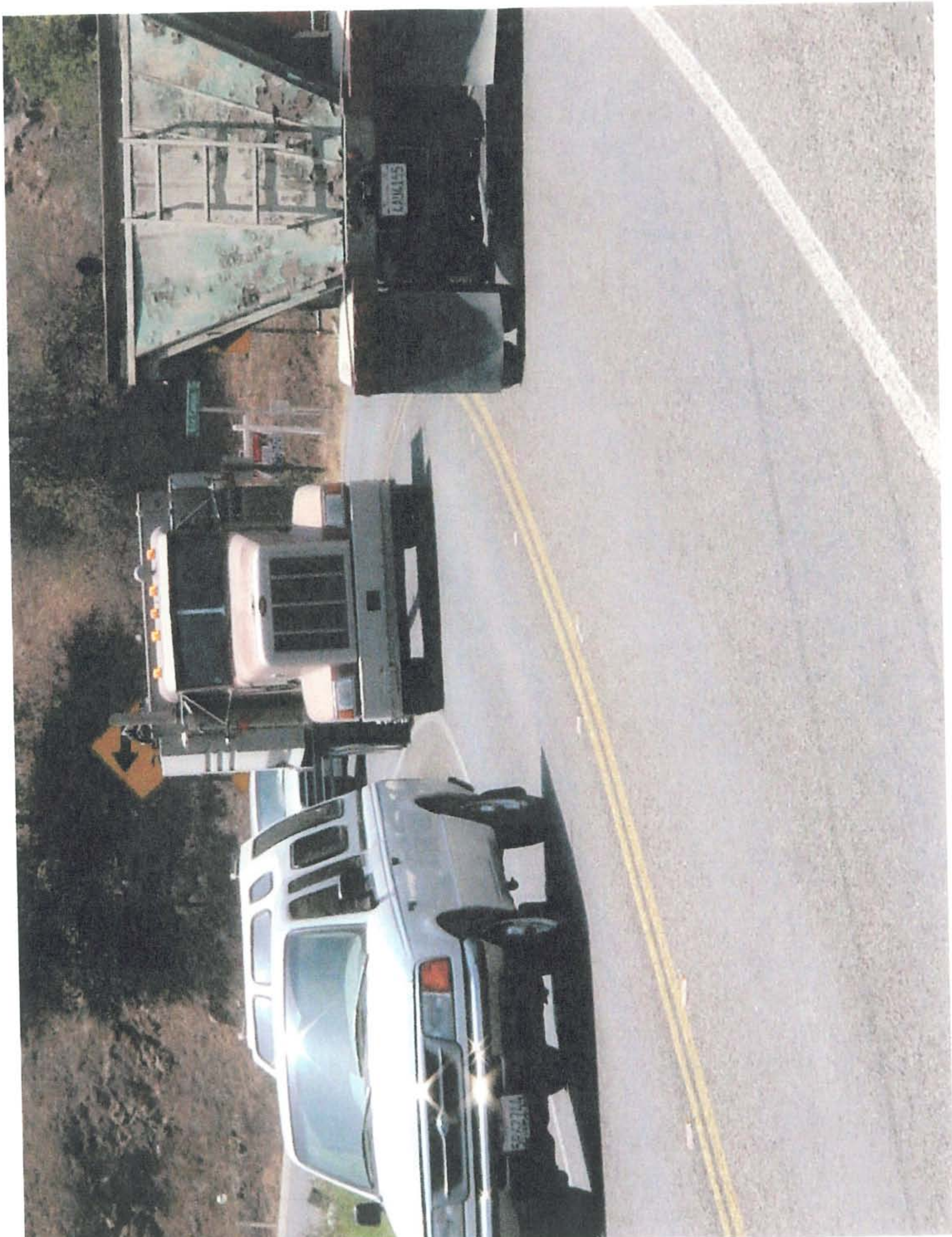

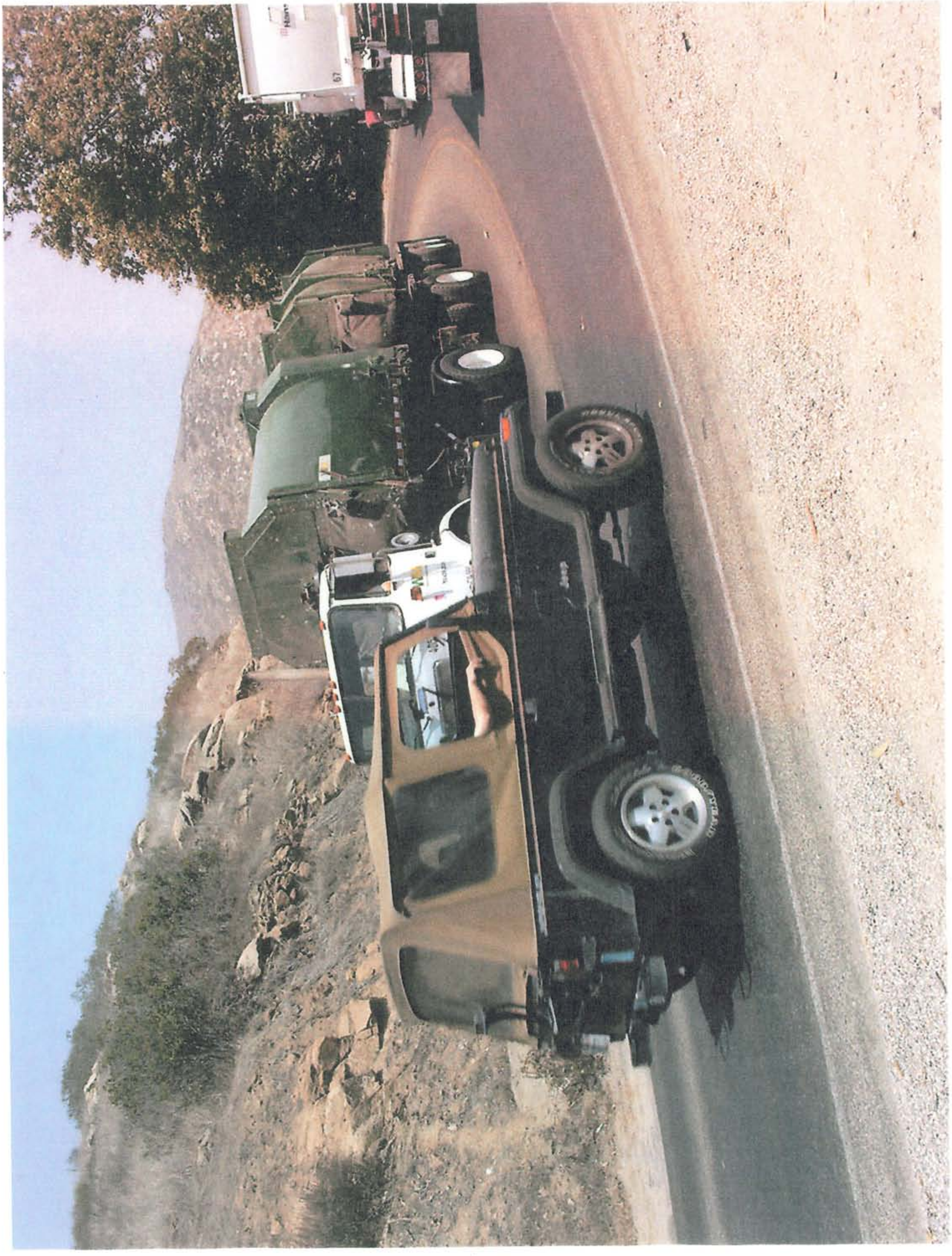

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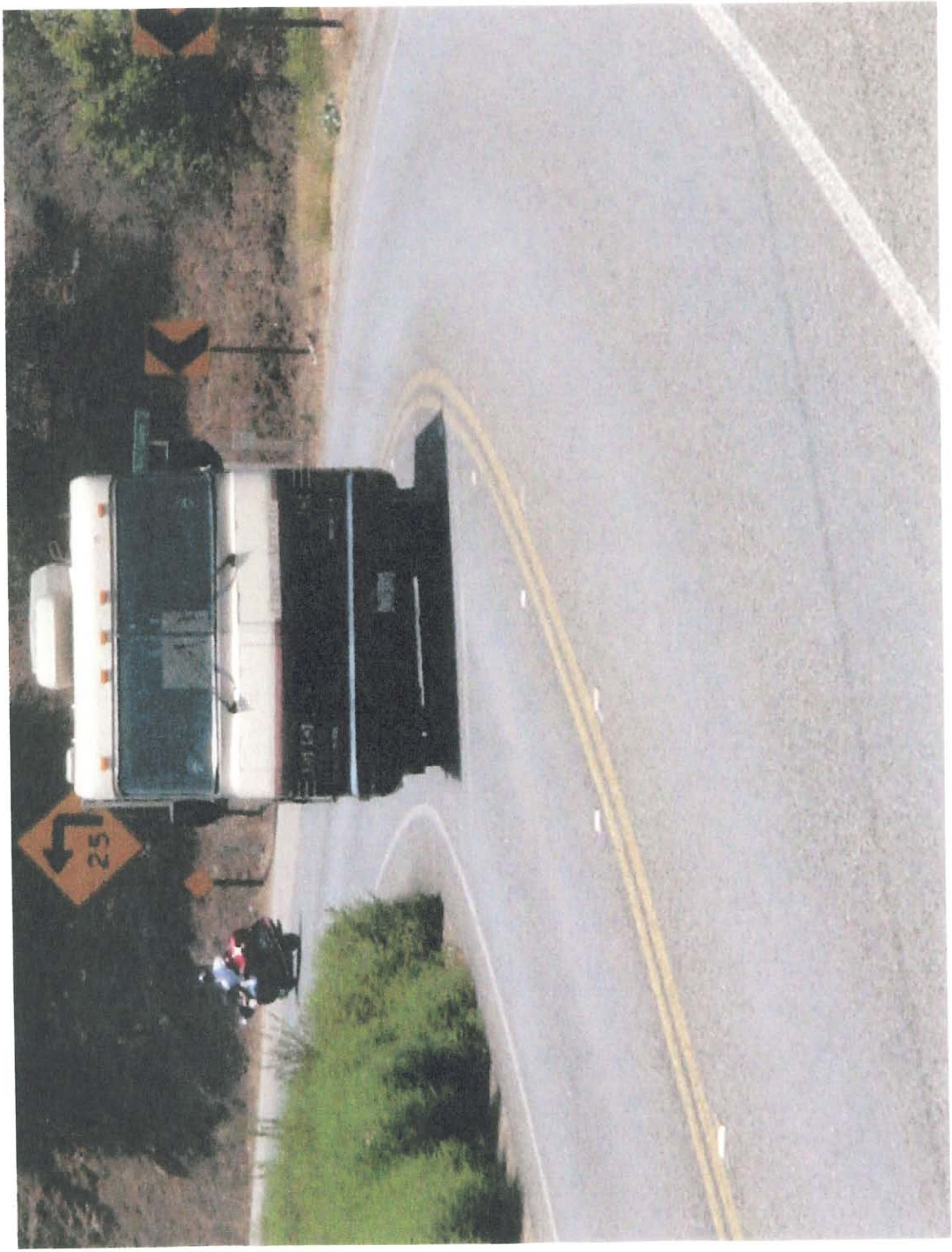

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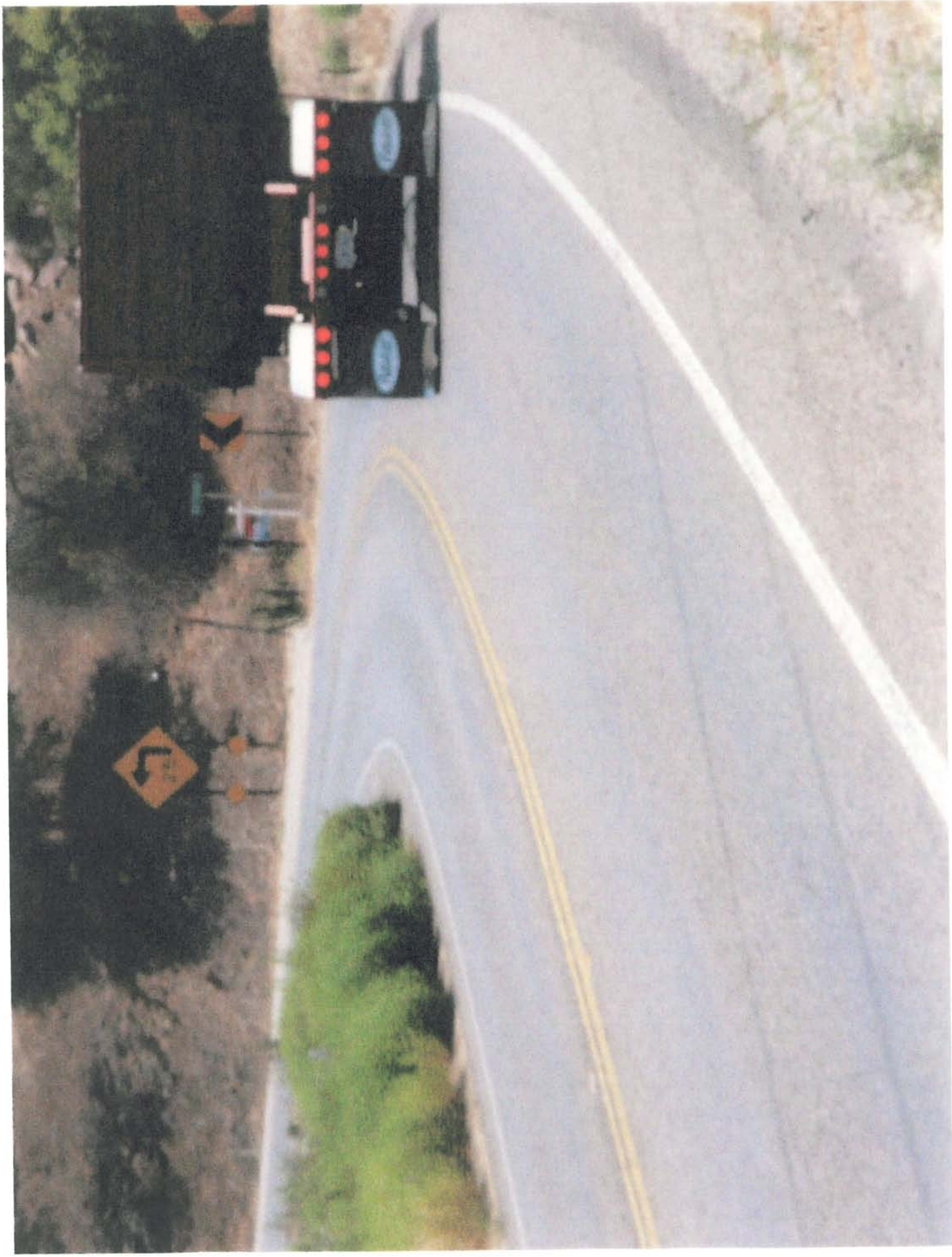

APPENDIX B

Excerpts from the *Public Facilities Element*
Excerpts from the *County Guidelines for Determining Significance*
Excerpts from Caltrans' *Guide for the Preparation of Traffic Impact Studies*

Excerpts from the *Public Facilities Element*

Part XII
Public Facility Element

San Diego County General Plan

Adopted
March 13, 1991
GPA 90-FE
Amended
June 10, 1992
GPA92-FE1

This Element was partially funded through the Community Development Block Grant program

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ISSUES

1. Increases in the amount of automobile use have resulted in increased congestion on the region's roadways.

Discussion: The dramatic rise in automobile use has far surpassed the ability of the County and other jurisdictions to upgrade and maintain the highway and road system. As the number of vehicles on the roadways has increased, the expansion of existing roadways and the construction of new roadways has not kept pace. Between 1978 and 1988, automobile registrations increased by 64% while increases in local street and road mileage only rose by 16%. As a result, certain roadways are functioning at a Level of Service "E" or "F" on a routine basis.

A LOS "C", which allows for stable traffic flow with room to maneuver, is a generally accepted level to strive for in new development. At this level, traffic generally flows smoothly, although freedom to maneuver within the roadway is somewhat restricted and lane changes require additional care.

However, there are some cases where development cannot achieve a LOS "C" on off-site roadways. For instance, there are areas where the existing development pattern precludes the addition of lanes or other mitigation or when the community is opposed to certain improvements to maintain a LOS "C". Additionally, there are existing roadways in the County that are currently operating below a LOS "C". Such cases are currently exceptions and generally occur when there is insufficient right-of-way to expand or modify a roadway or when the existing development in the area has generated more traffic than anticipated. In these cases a Level of Service "D" is acceptable on off-site roadways. At this level, small increases in flow cause substantial deterioration in service. Freedom to maneuver is limited and minor incidents can cause substantial interruption in the traffic flow.

When the roadway system reaches a LOS "E" or "F", or new development would push it to LOS "E" or "F", new development should not be approved unless the project can mitigate the LOS "E" or contribute a fair share to a program to mitigate the project's impacts, unless a statement of overriding findings can be made.

In order to control the amount of traffic on the roadways, and subsequently the amount of congestion, it is necessary to apply the LOS measurement to all roads that are impacted by a proposed project. The effect of a project on the road system varies from project to project. Due to the size and type of project, the type and capacity of roads serving the project, the amount of traffic generated by the development and the existing development pattern, the impact will vary from one project to another. To apply a LOS standard to only major or larger capacity roads or to within a specified geographic distance of a project could result in an inadequate review of the impacts of a project and create the potential for increased congestion. Therefore, project impacts should be assessed on a case-by-case basis.

GOALS, OBJECTIVES, POLICIES AND IMPLEMENTATION MEASURES

GOAL
A SAFE, CONVENIENT, AND ECONOMICAL INTEGRATED TRANSPORTATION SYSTEM INCLUDING A WIDE RANGE OF TRANSPORTATION MODES.

OBJECTIVE 1:

A Level of Service "C" or better on County Circulation Element roads.

Policy 1.1: New development shall provide needed roadway expansion and improvements on-site to meet the demand created by the development, and to maintain a Level of Service "C" on Circulation Element Roads during peak traffic hours. New development shall provide off-site improvements designed to contribute to the overall achievement of a Level of Service "D" on Circulation Element Roads.

Implementation Measure 1.1.1: Review all development proposals to determine both their short-term and long-term impacts on the roadway system. The area of impact will be determined based on the size, type and location of the project; the traffic generated by the project; and the existing circulation and development pattern in the area. [DPW, DPLU]

Implementation Measure 1.1.2: Require, as a condition of approval of discretionary projects, improvements or other measures necessary to mitigate traffic impacts to avoid reduction in the existing Level of Service below "C" on on-site Circulation Element roads. [DPLU, DPW]

Implementation Measure 1.1.3: Require, as a condition of approval of discretionary projects which have a significant impact on roadways, improvements or other measures necessary to mitigate traffic impacts to avoid reduction in the existing Level of Service below "D" on off-site and on-site abutting Circulation Element roads. New development that would significantly impact congestion on roads at LOS "E" or "F", either currently or as a result of the project, will be denied unless improvements are scheduled to increase the LOS to "D" or better or appropriate mitigation is provided . Appropriate mitigation would include a fair share contribution in the form of road improvements or a fair share contribution to an established program or project. If impacts cannot be mitigated, the project will be denied unless a specific statement of overriding findings is made pursuant to Section 15091(b) and 15093 of the State CEQA Guidelines. [DPLU, DPW]

Implementation Measure 1.1.4: Whenever possible on development proposals, require that access to parcels adjacent to roads shown on the Circulation Element be limited to side streets in order to maintain through traffic flow. [DPW, DPLU]

Excerpts from the County's *Guidelines for Determining Significance*

Part XV-A

Transportation/Traffic

Traffic

County of San Diego

Guidelines for Determining Significance

Adopted,

-- 66

2.3 Regional and Local Traffic Impact Analysis Guidelines

San Diego Traffic Engineers' Council (SANTEC) and the Institute of Traffic Engineers (ITE)

The San Diego Traffic Engineers' Council (SANTEC) and the local chapter of the Institute of Traffic Engineers (ITE) have endorsed for use the "Guidelines of Traffic Impact Studies (TIS) in the San Diego Region." These guidelines were prepared by a traffic subcommittee formed by SANDAG. The purpose of the subcommittee was to develop a model set of guidelines for the analysis of traffic impacts for adoption and use by the various jurisdictions in the San Diego region. The goal was to foster more consistency in the assessment of traffic impacts in the San Diego region. These guidelines establish a LOS target of LOS D. Impacts would be identified for those projects that significantly increase the volume and or delay at intersections and road segments operating below LOS D (i.e. at LOS E of LOS F) either prior to or as a result of the proposed project. These guidelines have not been formally adopted by SANDAG or local jurisdictions, but are currently being used as a guideline by many local traffic-engineering consultants in the preparation of traffic impact studies in the San Diego Region.

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) has prepared a "Guide for the Preparation of Traffic Impact Studies." Objectives for the preparation of this guide include providing consistency and uniformity in the identification of traffic impacts generated by local land use proposals. In terms of level of service, "Caltrans endeavors to maintain a target LOS at the C/D cusp on State highway facilities. However, Caltrans acknowledges that this may not always be feasible. In these circumstances, Caltrans may consider setting the target LOS at the D/E cusp."

City of San Diego

The City of San Diego has prepared a "Traffic Impact Study Manual." The purpose is to provide guidelines to consultants on how to prepare traffic impact studies in the City of San Diego and to ensure consistency on the preparation of these studies. Impacts are identified if the proposed project will increase the traffic volume on a road segment above an identified allowable increase. The better the initial level of service on the road segment, the higher the allowable volume increase.

3.0 TYPICAL ADVERSE EFFECTS

Typical traffic related impacts are most often associated with traffic congestion on local roads and the regional circulation network. As the San Diego region grows, the number of vehicle trips that are generated by residents also grows. Historically, vehicle trips have been increasing at a faster rate than that of the population growth. It is forecasted that more than 23 million vehicle trips would be made in this region each weekday by the year 2020. The automobile is expected to remain the primary method of travel in the region, but new and widened freeways, increased trolley and bus service, better rail service, and additional highway improvements would alleviate some of the traffic

B7

congestion. SANDAG's 2020 RTP details some of the regional improvements that are projected to occur within a twenty-year time frame. Impacts associated with traffic, pedestrian and bicycle safety are most often addressed at the project level.

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

This section provides guidance for evaluating adverse environmental effects a project may have on traffic. The guidelines for determining significance are organized into six subject areas: direct vs. cumulative, road segments, intersections, ramps, hazards due to a design feature, and hazards to pedestrians and/or bicyclists.

4.1 Direct vs. Cumulative Impacts

The California Environmental Quality Act (CEQA) Guidelines states that environmental assessments must take in account the "whole of the action" involved, including on-site, off-site, construction, and operational impacts. Also, the environmental assessment must evaluate project-level and cumulative impacts, including direct and indirect impacts.

4.1.1 Direct

Direct impacts are impacts that would result solely from the implementation of the project. Since CEQA requires a plan to ground assessment, direct impacts are typically evaluated based upon a comparison of the existing plus project scenario to the existing scenario. When opening day and/or a phased scenario is planned, additional comparisons may also be made to determine significance. Where it can be demonstrated that other projects will reasonably come on-line prior to development of the proposed project, an opening day assessment scenario may be used in lieu of the existing plus project approach. Coordination with County staff is recommended to ensure that proper assumptions are used in the preparation of this assessment scenario. Direct impacts would occur when the significance criteria outlined herein is exceeded.

4.1.2 Cumulative

CEQA section 15130 provides guidance for assessment of cumulative impacts. Per this section, CEQA states that cumulative impact assessments should be based upon 1) a list of past, present and probable future projects producing related or cumulative impacts, (includes all projects and if necessary, those projects outside the control of the agency), or 2) a summary of projects contained in an adopted general plan or related planning document, or in a prior certified/adopted environmental document which described or evaluated regional or area wide conditions contributing to the cumulative impact. For most projects, the list of past, present and probable projects approach is used for the assessment of cumulative impacts.

For projects that will be implemented and constructed in the near term, the "list of projects" approach is typically used in the assessment and evaluation of cumulative impacts. The assessment of cumulative projects can also be based upon a summary of projections contained within an adopted General Plan or related planning documents. This is typically used when the project includes a change to the County's General Plan or Zoning Ordinance. Projects that include both a change to near term development and the County's General Plan or Zoning may be required to provide both levels of evaluation.

Section 15130(a) of the State CEQA Guidelines state that cumulative impacts of a project should be discussed when the project impacts, even though individually limited, are cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. In evaluating cumulative traffic impacts two conditions must be evaluated: 1) will build-out of all near term projects result in a cumulative traffic impact and 2) does the amount of traffic generated by the individual proposed project contribute (even in a small part) to that cumulative impact. Both conditions must be met for an individual project to result in a cumulative traffic impact.

Cumulative traffic impacts are typically evaluated based upon a comparison of the near-term cumulative projects plus proposed project scenario (list of projects) to the existing scenario. If the traffic generated and/or redistributed from all the near term projects would result in a cumulative traffic impact then condition one is met. Condition two is evaluated based upon the traffic generated or redistributed by the proposed project and the list of projects onto a particular road segment and/or intersection. If the total amount of traffic generated and/or redistributed exceeds the values provided in Table 1, then the traffic would be considered cumulatively considerable and the individually proposed project would result in a cumulative traffic impact.

4.2 Road Segments

Exceedance of the following significance guidelines will be considered substantial evidence that private development and public improvement projects will have a significant traffic volume and/or level of service traffic impact on a road segment if:

- ***The additional or redistributed ADT generated by the proposed project will cause an adjacent or nearby County Circulation Element Road to operate below LOS D and will significantly increase congestion as identified in Table 1, and/or***
- ***The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity, and/or***

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- *The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road, State Highway or intersection currently operating at LOS E or LOS F as identified in Table 1.*

Table 1

Measures of Significant Project Impacts to Congestion
Allowable Increases on Congested Roads and Intersections

Road Segments

	2-LANE ROAD	4-LANE ROAD	6-LANE ROAD
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

Intersections

	SIGNALIZED	UNSIGNALIZED
LOS E	Delay of 2 seconds	20 peak hour trips on a critical movement
LOS F	Delay of 1 second, or 5 peak hour trips on a critical movement	5 peak hour trips on a critical movement

Note: A critical movement is one that is experiencing excessive queues.
Note: By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate a share of the cumulative impacts.
Note: The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

The County of San Diego Public Road Standards include a table which establishes levels of service for County Circulation Element roads based upon average daily trips. This table shall be used in determining the level of service for County Circulation Element roads. The Highway Capacity Manual (HCM) includes analysis criteria for the assessment of the level of service for two-lane highways. The Director of Public Works may, based upon a review of the operational characteristics of the roadway, designate that a HCM analysis be used to determine the level of service for a two-lane County arterial in lieu of the level of service table provided in the County of San Diego Public Road Standards.

In determining the level of service for road segments and intersections outside of the County of San Diego's jurisdiction, the level of service standards for the jurisdiction or agency (Caltrans) shall be used. Early coordination with the affected jurisdiction and/or agency (Caltrans) should be conducted during the preparation of the traffic impact study.

Capacity is related to level of service. The capacity of a facility is the maximum number of persons or vehicles that can be expected to traverse a point or uniform section of road within a specified time frame under prevailing roadway, traffic and control conditions. The LOS E/LOS F threshold is identified as the capacity of the facility (roadway or intersection). Volume to capacity ratios are calculated based upon this capacity (LOS E/LOS F) threshold.

Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots and not to carry through traffic. Congestion from the driver's perspective is typically not a concern. Compatibility of the traffic volumes on the local street in relation to the adjacent uses, however, may be an issue of concern. Recommended design capacities for residential non-Circulation Element streets are provided in the San Diego County Public Road Standards. For projects that will substantially increase traffic volumes on residential streets, a comparison of the traffic volumes on the residential streets with the recommended design capacity shall be provided.

The impact significance guidelines for road segments provided in Table 1 are based upon a general assessment and average conditions. These guidelines are based upon an assumed allowable 200 average daily trip (ADT) threshold per vehicle lane. Conservatively under worse case assumption this would be applied unidirectionally (project traffic only being assigned to one-side of the road). Using SANDAG's "Brief Guide for Vehicular Traffic Generation Rates for the San Diego Region" for most discretionary projects this would convert to less than 25 AM or PM peak hour trips. On average, during peak hour conditions, this would be only one additional car every 2.4 minutes. The addition of 200 ADT would, in most cases, not be noticeable to the average driver. Under extremely congested LOS F conditions, small changes and disruptions to the traffic flow can significantly affect traffic operations. Additional project traffic could increase the likelihood and/or frequency of these events. The allowable LOS F ADT threshold was, therefore, set at 50% of the LOS E threshold to provide a higher level of assurance that the traffic allowed under the threshold would not significantly impact traffic operation on the road segment.

For smaller discretionary projects, without controversy, the use of these guidelines is likely to be sufficient. For large projects, controversial projects and/or projects which are preparing Environmental Impact Reports, more detailed evaluations to verify the applicability of the significance thresholds for the individual project conditions may be necessary. Additional evaluations may include analysis of vehicle headways, speeds, average gaps, queues, delay, and/or other factors.

Projects that must prepare a CMP analysis, should also follow the CMP and SANTEC/ITE traffic impact analysis guidelines. A summary of these guidelines is provided in Table 2.

Table 2

Measure of Significant Project Traffic Impacts for Circulation Element Roads, Signalized Intersections, and Ramps

Level of Service With Project	Allowable Change due to Project Impact						
	Freeways		Roadway Segments*		Intersections**	Ramps***	Ramps with >15 min. delay
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)	Delay (min.)
E & F	0.01	1	0.02	1	2	-	2

* For County arterials which are not identified in SANDAG's Regional Transportation Plan and Congestion Management Plan as regionally significant arterials, then significance may be measured based upon an increase in average daily traffic. The allowable change (ADT) due to project impacts in this instance would be identified in Table 1.

** Signalized intersections

*** See Attachment E for ramp metering analysis.

KEY

V/C = Volume to Capacity ratio

Speed = Speed measured in miles per hour

Delay = Average stopped delay per vehicle measured in seconds, or minutes

LOS = Level of Service

ADT = Average Daily Trips

4.3 Intersections

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and unsignalized intersections.

4.3.1 Signalized

Exceedance of the following significance guidelines will be considered substantial evidence that private development and public improvement projects will have a significant volume and/or level of service traffic impact on a signalized intersection if:

- ***The additional or redistributed ADT generated by the proposed project will cause a signalized intersection to operate below LOS D and will significantly increase congestion as identified in Table 1, and/or***

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- *The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F as identified in Table 1.*

Significance criteria for signalized intersections identified in Table 1 allows an increase in the overall delay at an intersection operating at LOS E of two seconds. An increased wait time of two seconds, on average, would not be noticeable to the average driver. For LOS F conditions, however, a guideline based upon the number of trips added to a critical movement was used. This threshold directly relates to the number of vehicles that can be added to an existing queue that forms at the intersection. A threshold of five trips (peak hour) per critical movement was used. The five trips spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver.

For smaller discretionary projects, without controversy, the use of these guidelines is likely to be sufficient. For large projects, controversial projects and/or projects which are preparing Environmental Impact Reports, more detailed evaluations to verify the applicability of the significance thresholds for the individual project conditions may be necessary. Additional evaluations may include analysis of vehicle headways, speeds, average gaps, queues, delay, and/or other factors.

4.3.2 Unsignalized

The operating parameters and conditions for unsignalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn/thru movement of an unsignalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for unsignalized intersections was based upon a minimum overall number of trips added to a critical movement (such as a left turn lane estimated to operate at LOS E of LOS F) at an unsignalized intersection.

Exceedance of the following significance guidelines will be considered substantial evidence that private development and public improvement projects will have a significant volume and/or level of service traffic impact on a unsignalized intersection if:

- *The proposed project will generate 20 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate below LOS D, or*

- *The proposed project will generate 20 or more peak hour trips to a critical movement of an unsignalized intersection and the unsignalized intersection currently operates at LOS E, or*

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- *The proposed project will generate 5 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate below LOS E, or*

- *The proposed project will generate 5 or more peak hour trips to a critical movement of an unsignalized intersection and the unsignalized intersection currently operates at LOS F, or*

- *Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance and/or other factors, it is found that the generation rate less than those specified above would significantly impact the operations of the intersection.*

The significance guidelines for unsignalized intersections set a minimum overall number of trips added to a critical movement at an unsignalized intersection and are supported by significance criteria for unsignalized intersections that are also identified in Table 1. Since the operations of unsignalized intersections under congested conditions are heavily influenced by traffic volume increases on critical moves, the significance guidelines for unsignalized intersections were based upon the number of trips added to a critical move. As stated above, this guideline directly relates to the number of vehicles that can be added to an existing queue that forms at the intersection. A significance guideline of twenty trips (peak hour) per critical movement was used for LOS E conditions. Although delays drivers experience under LOS E condition may be extreme, they are not yet considered unacceptable. The twenty trips spread out over the peak hour would not likely cause the intersection delay and/or existing queue lengths to become unacceptable. The twenty trips (peak hour) would not be noticeable to the average driver. A significance guideline of five trips (peak hour) per critical movement was used for LOS F conditions. The five trips spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver

A peak hour increase of twenty peak hour trips to the critical movement of an unsignalized intersection would be, on average, one additional car every 3.0 minutes. Assuming the average wait time for a vehicle in the critical movement queue is less than 3.0 minutes, this would not be noticeable to the average driver.

For smaller discretionary projects, without controversy, use of these guidelines is likely to be sufficient. For large projects, controversial projects, and/or projects which are preparing Environmental Impact Reports, more detailed evaluations to verify the applicability of the significance guidelines for the individual project conditions may be necessary. Additional evaluations may include analysis of vehicle headways, speeds, average gaps, queues, delay, and/or other factors.

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4.4 Ramps

Additional or redistributed ADT generated by the proposed project will significantly increase congestion at a freeway ramp. Table 2 may be used as a guide in determining significant increases in congestion on ramps. Since the analysis of delays at ramps is still in its infancy these values should not be considered as absolutes. Factors affecting these values may include ramp metering, location (rural vs. urban), ramp design, and the proximity of adjacent intersections. Coordination with Caltrans and the local jurisdiction should be conducted to determine appropriate impact criteria for the specific ramps being assessed.

4.5 Hazards Due to a Design Feature

The following significance guidelines will be considered substantial evidence that a proposed project will have a significant traffic hazard impact due to a design feature. The determination of significance shall be on a case-by-case basis, considering the following factors:

- *Design features/physical configurations of access roads adversely affect the safe transport of vehicles along the roadway.*
- *The percentage and/or magnitude of increased traffic on the road due to the proposed project affect the safety of the roadway.*
- *The physical conditions of the project site and surrounding area, such as curves, slopes, walls, landscaping or other barriers that could result in vehicle conflicts with other vehicles and/or stationary objects.*
- *The project does not conform to the requirements of the private or public road standards, as applicable.*

4.6 Hazards to Pedestrians and/or Bicyclists

The following significance guidelines will be considered substantial evidence that a proposed project will have a significant traffic hazard impact to pedestrians and/or bicyclists. The determination of significance shall be on a case-by-case basis, considering the following factors:

- *Design features/physical configurations adversely affect the visibility of pedestrians and/or bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists.*
- *The amount of pedestrian activity at the project access points may adversely affect pedestrian safety.*

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- *The project may result in the preclusion or substantial hindrance of the provision of a planned bike lane or pedestrian facility on a roadway adjacent to the project site.*

- *The percentage and/or magnitude of increased traffic on the road due to the proposed project may adversely affect pedestrian and bicycle safety.*

- *The physical conditions of the project site and surrounding area, such as curves, slopes, walls, landscaping or other barriers could result in vehicle/pedestrian, vehicle/bicycle conflicts.*

- *The project does not conform to the requirements of the private or public road standards, as applicable.*

- *The project may result in a substantial increase in pedestrian or bicycle activity without the presence of adequate facilities.*

5.0 GUIDELINES FOR PREPARING A TRAFFIC IMPACT STUDY (TIS)

A thorough traffic analysis will consider all aspects of a project (including all on- and off-site improvements). The analysis should identify whether these impacts are direct, indirect and/or cumulative in nature and determine whether the impacts are significant.

5.1 Overview of a Traffic Impact Study and General Contents

The purpose of a traffic impact study is to evaluate potential individual and cumulative traffic impacts that may result from a proposed project. Substantial increases in traffic volumes on and/or changes to the road network may cause congestion at existing and /or future roads and intersections. A detailed analysis of the traffic generated and/or redirected by a proposed project, assessment of potential impacts, and identification of mitigation measures for significant traffic impacts are the main focus of a traffic impact study.

The analysis of traffic issues, evaluation of traffic impacts, and development of mitigation measures for traffic impacts are complex tasks. The type and scope of a traffic impact study will vary based upon the size of a project, its location and other factors. Typically, a traffic impact study will include several components as outlined in Attachment B and summarized below:

5.1.1 Existing Conditions

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Documentation of the existing traffic volumes, levels of service, and geometrics for roads and intersections that may be potentially impacted by the proposed project must be provided. This assessment is typically based upon traffic counts that are less than two years old, unless it has been demonstrated that traffic volumes have not significantly changed since the prior counts were taken.

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Excerpts from Caltrans *Guide for the Preparation of Traffic Impact Studies*

Caltrans

GUIDE FOR THE PREPARATION

OF

TRAFFIC IMPACT STUDIES

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

January 2001

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PREFACE

The California Department of Transportation (Caltrans) has developed this "Guide for the Preparation of Traffic Impact Studies" in response to a survey of cities and counties in California. The purpose of that survey was to improve the Caltrans local development review process (also known as the Intergovernmental Review/California Environmental Quality Act or IGR/CEQA process). The survey indicated that approximately 30 percent of the respondents were not aware of what Caltrans required in a traffic impact study (TIS).

In the early 1990s, the Caltrans District 6 office located in Fresno identified a need to provide better quality and consistency in the analysis of traffic impacts generated by local development and land use change proposals that effect State highway facilities. At that time District 6 brought together both public and private sector expertise to develop a traffic impact study guide. The District 6 guide has proven to be successful at promoting consistency and uniformity in the identification and analysis of traffic impacts generated by local development and land use changes.

The guide developed in Fresno was adapted for statewide use by a team of Headquarters and district staff. The guide will provide consistent guidance for Caltrans staff who review local development and land use change proposals as well as inform local agencies of the information needed for Caltrans to analyze the traffic impacts to State highway facilities. The guide will also benefit local agencies and the development community by providing more expeditious review of local development proposals.

Even though sound planning and engineering practices were used to adapt the Fresno TIS guide, it is anticipated that changes will occur over time as new technologies and more efficient practices become available. To facilitate these changes, Caltrans encourages all those who use this guide to contact their nearest district office (i.e., IGR/CEQA Coordinators) to coordinate any changes with the development team.

ACKNOWLEDGEMENTS

The District 6 traffic impact study guide provided the impetus and a starting point for developing the statewide guide. Special thanks is given to Marc Birnbaum for recognizing the need for a TIS guide and for his valued experience and vast knowledge of land use planning to significantly enhance the effort to adapt the District 6 guide for statewide use. Randy Treece from District 6 provided many hours of coordination, research and development of the original guide and should be commended for his diligent efforts. Sharri Bender Ehlert of District 6 provided much of the technical expertise in the adaptation of the District 6 guide and her efforts are greatly appreciated.

A special thanks is also given to all those Cities, Counties, Regional Agencies, Congestion Management Agencies, Consultants, and Caltrans Employees who reviewed the guide and provided input during the development of this Guide for the Preparation of Traffic Impact Studies.

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TABLE OF CONTENTS

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I. INTRODUCTION

Caltrans desires to provide a safe and efficient State transportation system for the citizens of California pursuant to various Sections of the California Streets and Highway Code. This is done in partnership with local and regional agencies through procedures established by the California Environmental Quality Act (CEQA) and other land use planning processes. The intent of this guide is to provide a starting point and a consistent basis in which Caltrans evaluates traffic impacts to State highway facilities. The applicability of this guide for local streets and roads (non-State highways) is at the discretion of the effected jurisdiction.

Caltrans reviews federal, state, and local agency development projects[1], and land use change proposals for their potential impact to State highway facilities. The primary objectives of this guide is to provide:

- guidance in determining if and when a traffic impact study (TIS) is needed,
- consistency and uniformity in the identification of traffic impacts generated by local land use proposals,
- consistency and equity in the identification of measures to mitigate the traffic impacts generated by land use proposals,
- lead agency[2] officials with the information necessary to make informed decisions regarding the existing and proposed transportation infrastructure (see Appendix A, Minimum Contents of a TIS)
- TIS requirements early in the planning phase of a project (i.e., initial study, notice of preparation, or earlier) to eliminate potential delays later,
- a quality TIS by agreeing to the assumptions, data requirements, study scenarios, and analysis methodologies in advance of beginning the study, and
- early coordination during the planning phases of a project to reduce the time and cost of preparing a TIS.

II. WHEN A TRAFFIC IMPACT STUDY IS NEEDED

The level of service[3] (LOS) for operating State highway facilities is based upon measures of effectiveness (MOEs). These MOEs (see Appendix "C-2") describe the measures best suited for analyzing State highway facilities (i.e., freeway sections, signalized intersections, on- or off-ramps, etc.). Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" (see Appendix "C-3") on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.

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[1] "Project" refers to activities directly undertaken by government, financed by government, or requiring a permit or other approval from government as defined in Section 21065 of the Public Resources Code and Section 15378 of the California Code of Regulations.

[2] "Lead Agency" refers to the public agency that has the principal responsibility for carrying out or approving a project. Defined in Section 21165 of the Public Resources Code, the "California Environmental Quality Act, and Section 15367 of the California Code of Regulations.

[3] "Level of service" as defined in the latest edition of the Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council.

A. Trip Generation Thresholds

The following criterion is a starting point in determining when a TIS is needed. When a project:

1. Generates over 100 peak hour trips assigned to a State highway facility
2. Generates 50 to 100 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (LOS "C" or "D").
3. Generates 1 to 49 peak hour trips assigned to a State highway facility – the following are examples that may require a full TIS or some lesser analysis[4]:
   a. Affected State highway facilities experiencing significant delay; unstable or forced traffic flow conditions (LOS "E" or "F").
   b. The potential risk for a traffic incident is significantly increased (i.e., congestion related collisions, non-standard sight distance considerations, increase in traffic conflict points, etc.).
   c. Change in local circulation networks that impact a State highway facility (i.e., direct access to State highway facility, a non-standard highway geometric design, etc.).

Note: A traffic study may be as simple as providing a traffic count to as complex as a microscopic simulation. The appropriate level of study is determined by the particulars of a project, the prevailing highway conditions, and the forecasted traffic.

B. Exceptions

Exceptions require consultation between the lead agency, Caltrans, and those preparing the TIS. When a project's traffic impact to a State highway facility can clearly be anticipated without a study and all the parties involved (lead agency, developer, and the Caltrans district office) are able to negotiate appropriate mitigation, a TIS may not be necessary.

C. Updating An Existing Traffic Impact Study

A TIS requires updating when the amount or character of traffic is significantly different from an earlier study. Generally a TIS requires updating every two years. A TIS may require updating sooner in rapidly developing areas and not as often in slower developing areas. In these cases, consultation with Caltrans is strongly recommended.

III. SCOPE OF TRAFFIC IMPACT STUDY

Consultation between the lead agency, Caltrans, and those preparing the TIS is recommended before commencing work on the study to establish the appropriate scope. At a minimum, the TIS should include the following:

A. Boundaries of the Traffic Impact Study

All State highway facilities impacted in accordance with the criteria in Section II should be studied. Traffic impacts to local streets and roads can impact intersections with State highway facilities. In these cases, the TIS should include an analysis of adjacent local facilities, upstream and downstream, of the intersection (i.e., driveways, intersections, and interchanges) with the State highway.

[4] A "lesser analysis" may include obtaining traffic counts, preparing signal warrants, or a focused TIS, etc.

B. Traffic Analysis Scenarios

Caltrans is interested in the effects of general plan updates and amendments as well as the effects of specific project entitlements (i.e., site plans, conditional use permits, sub-divisions, rezoning, etc.) that have the potential to impact a State highway facility. The complexity or magnitude of the impacts of a project will normally dictate the scenarios necessary to analyze the project. Consultation between the lead agency, Caltrans, and those preparing the TIS is recommended to determine the appropriate scenarios for the analysis. The following scenarios should be addressed in the TIS when appropriate:

1. When only a general plan amendment or update is being sought, the following scenarios are required:
   a) Existing Conditions - Current year traffic volumes and peak hour LOS analysis of effected State highway facilities.
   b) Proposed Project Only with Select Link[5] Analysis - Trip generation and assignment for build-out of general plan.
   c) General Plan Build-out Only - Trip assignment and peak hour LOS analysis. Include current land uses and other pending general plan amendments.
   d) General Plan Build-out Plus Proposed Project - Trip assignment and peak hour LOS analysis. Include proposed project and other pending general plan amendments.

2. When a general plan amendment is not proposed and a proposed project is seeking specific entitlements (i.e., site plans, conditional use permits, sub-division, rezoning, etc.), the following scenarios must be analyzed in the TIS:
   a) Existing Conditions - Current year traffic volumes and peak hour LOS analysis of effected State highway facilities.
   b) Proposed Project Only - Trip generation, distribution, and assignment in the year the project is anticipated to complete construction.
   c) Cumulative Conditions (Existing Conditions Plus Other Approved and Pending Projects Without Proposed Project) - Trip assignment and peak hour LOS analysis in the year the project is anticipated to complete construction.
   d) Cumulative Conditions Plus Proposed Project (Existing Conditions Plus Other Approved and Pending Projects Plus Proposed Project) - Trip assignment and peak hour LOS analysis in the year the project is anticipated to complete construction.
   e) Cumulative Conditions Plus Proposed Phases (Interim Years) - Trip assignment and peak hour LOS analysis in the years the project phases are anticipated to complete construction.

3. In cases where the circulation element of the general plan is not consistent with the land use element or the general plan is outdated and not representative of current or future forecasted conditions, all scenarios from Sections III. B. 1. and 2. should be utilized with the exception of duplicating of item 2.a.

[5] "Select link" analysis represents a project only traffic model run, where the project's trips are distributed and assigned along the highway network. This procedure isolates the specific impact on the State highway network.

IV. TRAFFIC DATA

Prior to any fieldwork, consultation between the lead agency, Caltrans, and those preparing the TIS is recommended to reach consensus on the data and assumptions necessary for the study. The following elements are a starting point in that consideration.

A. Trip Generation

The latest edition of the Institute of Transportation Engineers' (ITE) TRIP GENERATION report should be used for trip generation forecasts. Local trip generation rates are also acceptable if appropriate validation is provided to support them.

1. Trip Generation Rates – When the land use has a limited number of studies to support the trip generation rates or when the Coefficient of Determination (R^2) is below 0.75, consultation between the lead agency, Caltrans and those preparing the TIS is recommended.
2. Pass-by Trips[6] – Pass-by trips are only considered for retail oriented development. Reductions greater than 15% requires consultation and acceptance by Caltrans. The justification for exceeding a 15% reduction should be discussed in the TIS.
3. Captured Trips[7] – Captured trip reductions greater than 5% requires consultation and acceptance by Caltrans. The justification for exceeding a 5% reduction should be discussed in the TIS.
4. Transportation Demand Management (TDM) – Consultation between the lead agency and Caltrans is essential before applying trip reduction for TDM strategies.

NOTE: Reasonable reductions to trip generation rates are considered when adjacent State highway volumes are sufficient (at least 5000 ADT) to support reductions for the land use.

B. Traffic Counts

Prior to field traffic counts, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to determine the level of detail (e.g., location, signal timing, travel speeds, turning movements, etc.) required at each traffic count site. All State highway facilities within the boundaries of the TIS should be considered. Common rules for counting vehicular traffic include but are not limited to:

1. Vehicle counts should be conducted on Tuesdays, Wednesdays, or Thursdays during weeks not containing a holiday and conducted in favorable weather conditions.
2. Vehicle counts should be conducted during the appropriate peak hours (see peak hour discussion below).
3. Seasonal and weekend variations in traffic should also be considered where appropriate (i.e., recreational routes, tourist attractions, harvest season, etc.).

C. Peak Hours

To eliminate unnecessary analysis, consultation between the lead agency, Caltrans and those preparing the TIS is recommended during the early planning stages of a project. In general, the TIS should include a morning (a.m.) and an evening (p.m.) peak hour analyses. Other peak hours (e.g., 11:30 a.m. to 1:30 p.m., weekend, holidays, etc.) may also be required to determine the significance of the traffic impacts generated by a project.

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[6] "Pass-by" trips are made as intermediate stops between an origin and a primary trip destination (i.e., home to work, home to shopping, etc.).

[7] "Captured Trips" are trips that do not enter or leave the driveways of a project's boundary within a mixed-use development.

D. Travel Forecasting (Transportation Modeling)

The local or regional traffic model should reflect the most current land use and planned improvements (i.e., where programming or funding is secured). When a general plan build-out model is not available, the closest forecast model year to build-out should be used. If a traffic model is not available, historical growth rates and current trends can be used to project future traffic volumes. The TIS should clearly describe any changes made in the model to accommodate the analysis of a proposed project.

V. TRAFFIC IMPACT ANALYSIS METHODOLOGIES

Typically, the traffic analysis methodologies for the facility types indicated below are used by Caltrans and will be accepted without prior consultation. When a State highway has saturated flows, the use of a micro-simulation model is encouraged for the analysis. Other analysis methods may be accepted, however, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to agree on the information necessary for the analysis.

A. Freeway Sections – Highway Capacity Manual (HCM)* Chapter 3, operational analysis
B. Weaving Areas – Caltrans Highway Design Manual (HDM) Chapter 500
C. Ramps and Ramp Junctions – HCM* Chapter 5, operational analysis or Caltrans HDM Chapters 400 and 500, Caltrans Ramp Metering Guidelines (most recent edition)
D. Multi-Lane Rural and Urban Highways – HCM* Chapter 7, operational analysis
E. Two-lane Highways – HCM* Chapter 8, operational analysis
F. Signalized Intersections[8] – HCM* Chapter 9, Highway Capacity Software**, operational analysis, TRAFFIX™**, Synchro**, see footnote 8
G. Unsignalized Intersections – HCM* Chapter 10, operational analysis, Caltrans Traffic Manual for signal warrants if a signal is being considered
H. Transit Capacity – HCM* Chapter 12, operational analysis
I. Pedestrians - HCM* Chapter 13
J. Bicycles – HCM* Chapters 14, use operational analysis when applying Chapter 9 and 10 HCM methods to bicycle analysis
K. Caltrans Criteria/Warrants – Caltrans Traffic Manual (stop signs, traffic signals, freeway lighting, conventional highway lighting, school crossings)
L. Channelization – Caltrans guidelines for Reconstruction of Intersections, August 1985, Ichiro Fukutome

*The most current edition of the Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council, should be used.

**NOTE: Caltrans does not officially advocate the use of any special software. However, consistency with the HCM is advocated in most but not all cases. The Caltrans local development review units utilize the software mentioned above. If different software or analytical techniques are used for the TIS then consultation between the lead agency, Caltrans and those preparing the TIS is recommended. Results that are significantly different than those produced with the analytical techniques above should be challenged.

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[8] The procedures in the Highway Capacity Manual "do not explicitly address operations of closely spaced signalized intersections. Under such conditions, several unique characteristics must be considered, including spill-back potential from the downstream intersection to the upstream intersection, effects of downstream queues on upstream saturation flow rate, and unusual platoon dispersion or compression between intersections. An example of such closely spaced operations is signalized ramp terminals at urban interchanges. Queue interactions between closely spaced intersections may seriously distort the procedures in" the HCM. Scope of Manual, page 1-2, Highway Capacity Manual, Special Report 209, updated December 1997.

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VI. MITIGATION MEASURES

The TIS should provide the nexus [Nollan v. California Coastal Commission, 1987, 483 U.S. 825 (108 S.Ct. 314)] between a project and the traffic impacts to State highway facilities. The TIS should also establish the rough proportionality [Dolan v. City of Tigard, 1994, 512 U.S. 374 (114 S. Ct. 2309)] between the mitigation measures and the traffic impacts. One method for establishing the rough proportionality or a project proponent's equitable responsibility for a project's impacts is provided in Appendix "B." Consultation between the lead agency, Caltrans and those preparing the TIS is recommended to reach consensus on the mitigation measures and who will be responsible.

Mitigation measures must be included in the traffic impact analysis. This determines if a project's impacts can be eliminated or reduced to a level of insignificance. Eliminating or reducing impacts to a level of insignificance is the standard pursuant to CEQA and the National Environmental Policy Act (NEPA). The lead agency is responsible for administering the CEQA review process and has the principal authority for approving a local development proposal or land use change. Caltrans, as a responsible agency, is responsible for reviewing the TIS for errors and omissions that pertain to State highway facilities. The authority vested in the lead agency to administer the CEQA process does not take precedence over other authorities in law.

If the mitigation measures require work in the State highway right-of-way an encroachment permit from Caltrans will be required. This work will also be subject to Caltrans standards and specifications. Consultation between the lead agency, Caltrans and those preparing the TIS early in the planning process is strongly recommended to expedite the review of local development proposals and to reduce conflicts and misunderstandings in both the local agency CEQA review process as well as the Caltrans encroachment permit process.

MEASURES OF EFFECTIVENESS BY FACILITY TYPE

TYPE OF FACILITY	MEASURE OF EFFECTIVENESS
Freeways	
Basic Freeway Segments	Density (pc/mi/ln)
Weaving Areas	Density (pc/mi/ln)
Ramp Junctions	Flow Rates (pcph)
Multi-Lane Highways	Density (pc/mi/ln) Free-Flow Speed (mph)
Two-Lane Highways	Time Delay (percent)
Signalized Intersections	Average Control Delay (sec/veh)
Unsignalized Intersections	Average Control Delay (sec/veh)
Arterials	Average Travel Speed (mph)
Transit	Load Factor (pers/seat, veh/hr, people/hr)
Pedestrians	Space (sq. ft./ped)

Measures of effectiveness for level of service definitions located in table 1-2, Chapter 1, of the 1997 Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council.

APPENDIX C
Cumulative Projects

SUMMARY OF CUMULATIVE ADTs BY ZONE

SR-76 - West of 395

Zone	Percent	ADT
PP-A	30%	1256
PP-B	6%	313
PP-C	8%	437
PP-D	8%	107
PP-E	6%	1
VC-A-A	2%	285
VC-A-B	1%	41
VC-A-C	2%	105
VC-A-D	1%	110
VC-A-E	0%	0
VC-B-1	2%	35
VC-B-2	2%	218
VC-B-3	2%	117
VC-B-4	1%	21
TOTAL		3047

SR-76 - 395 to I-15

Zone	Percent	ADT
PP-A	50%	2093
PP-B	6%	313
PP-C	8%	437
PP-D	8%	107
PP-E	6%	1
VC-A-A	2%	285
VC-A-B	1%	41
VC-A-C	2%	105
VC-A-D	1%	110
VC-A-E	0%	0
VC-B-1	2%	35
VC-B-2	2%	218
VC-B-3	2%	117
VC-B-4	1%	21
TOTAL		3884

SR-76 - I-15 to Pankey

Zone	Percent	ADT
PP-A	5%	209
PP-B	50%	2608
PP-C	60%	3280
PP-D	30%	403
PP-E	20%	2
VC-A-A	5%	713
VC-A-B	7%	288
VC-A-C	6%	314
VC-A-D	3%	331
VC-A-E	2%	8
VC-B-1	5%	87
VC-B-2	6%	655
VC-B-3	5%	292
VC-B-4	2%	43
TOTAL		9232

SR-76 - Pankey to Couser

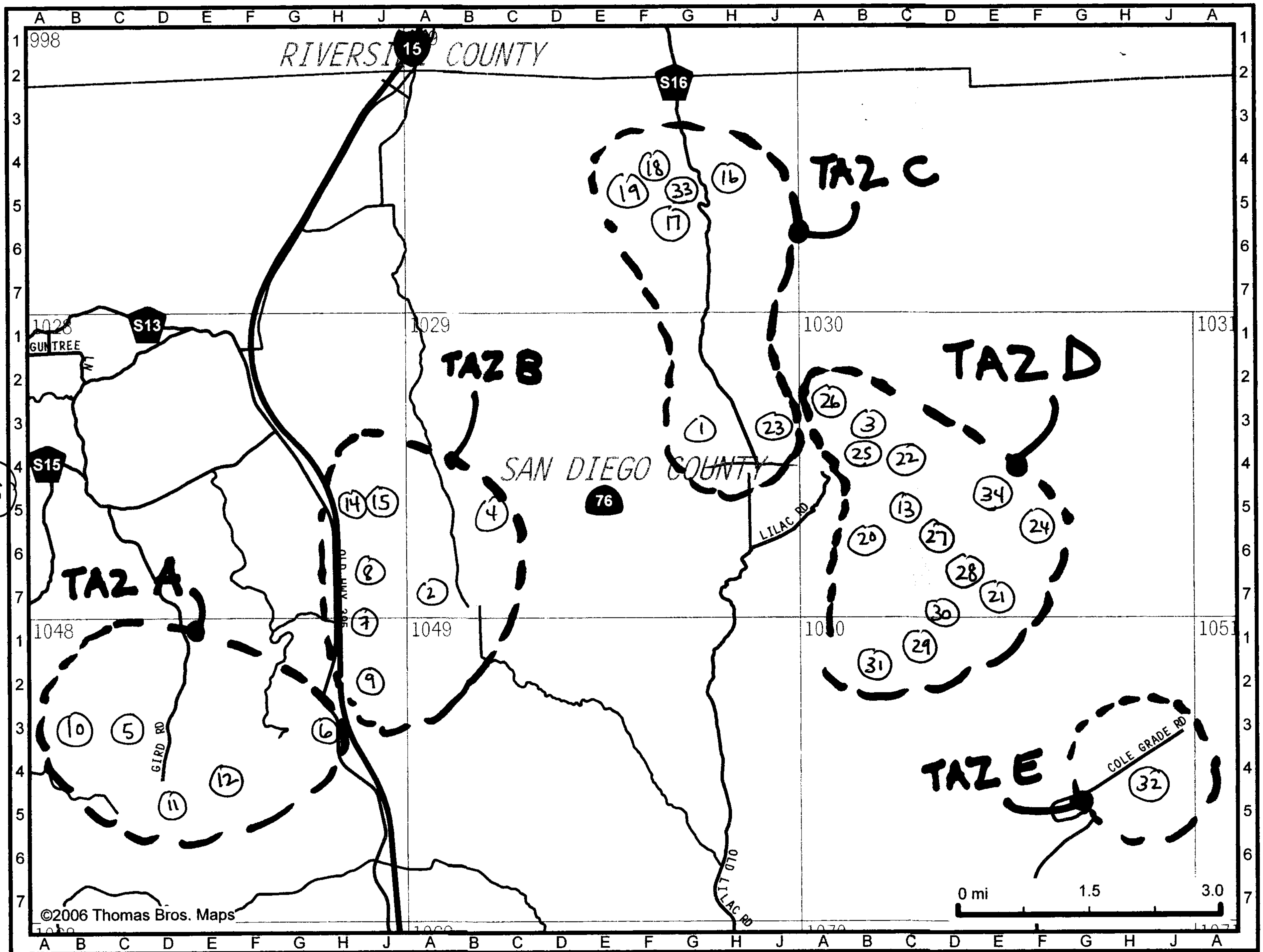
Zone	Percent	ADT
PP-A	5%	209
PP-B	12%	626
PP-C	60%	3280
PP-D	30%	403
PP-E	20%	2
VC-A-A	5%	713
VC-A-B	6%	247
VC-A-C	5%	261
VC-A-D	4%	441
VC-A-E	2%	8
VC-B-1	5%	87
VC-B-2	6%	655
VC-B-3	5%	292
VC-B-4	2%	43
TOTAL		7268

SR-76 - Couser to Project

Zone	Percent	ADT
PP-A	5%	209
PP-B	12%	626
PP-C	60%	3280
PP-D	30%	403
PP-E	20%	2
VC-A-A	5%	713
VC-A-B	6%	247
VC-A-C	5%	261
VC-A-D	4%	441
VC-A-E	2%	8
VC-B-1	5%	87
VC-B-2	6%	655
VC-B-3	5%	292
VC-B-4	2%	43
TOTAL		7268

SR-76 - East of Project

Zone	Percent	ADT
PP-A	5%	209
PP-B	12%	626
PP-C	60%	3280
PP-D	30%	403
PP-E	20%	2
VC-A-A	5%	713
VC-A-B	6%	247
VC-A-C	5%	261
VC-A-D	4%	441
VC-A-E	2%	8
VC-B-1	5%	87
VC-B-2	6%	655
VC-B-3	5%	292
VC-B-4	2%	43
TOTAL		7268



PALA - PAUMA (PP-A-E)

(C2)

Pala/Pauma Cumulative Projects					
TAZ	MapID	PROJECT	LAND USE	DENSITY	TRIPS
C	1	Pala Casino Expansion	Gaming/Hotel	70 ksf gaming+50 rm hotel	4950
B	2	Rosemary Mtn Palomar Agg	Mining	Truck pce trips	60
D	3	Calmat Pala Mine	Mining	(included in existing)	0
B	4	Pipeline #6	Construction	Truck pce trips	140
A	5	Sycamore Ranch	Single Family	195 units+golf	2550
A	6	I-15/SR-76 Gas Station	Fueling (12)	12 Stations	1800
B	7	I-15/SR-76 Master SP	Comm/RV	(future only)	0
B	8	Campus Park Specific Plan	School	750 Students	975
B	9	Lake Rancho Viejo	Single Family	816 units	8160
A	10	Brooks Hills	Single Family	110 units	1110
A	11	Dulin Ranch	SF+school	(future only)	0
A	12	SR-76 Improvement Project	Construction	(future only)	0
D	13	Pauma Valley Fruit Packing	Industrial	38,060 sq ft	240
B	14	Passerelle	Mixed	698 SFDU; 252 Sr Housing 4 ac town ctr, 1500 ksf office	24846
B	15	Meadow Wood	Mixed Resident	517 SF; 727 MF	10566
C	16	TPM 20485	Residential	3 Estates	36
C	17	TPM 20725	Residential	4 Estates	48
C	18	ZAP 03043	Residential	1 Estate	12
C	19	ZAP 03056	Residential	1 Estate	12
D	20	TM 5223	Residential	46 Estates	552
D	21	TPM 20392	Residential	4 Estates	48
D	22	TPM 20611	Residential	4 Estates	48
C	23	TPM 20753	Residential	4 Estates	48
D	24	TPM 20804	Residential	2 Estates	24
D	25	MUP 63-162	Medical	3400 sq ft	68
D	26	MUP 67-092	Campground	4 acres	16
D	27	MUP 98-011	Residential	8 Estates	96
D	28	MUP 99-011	Food Process	14,000 sq ft	70
D	29	ZAP 94-010	Residential	1 Estate	12
D	30	MUP 84-037	Church	25 trips	25
D	31	MUP 92-003	Residential	1 Estate	12
E	32	MUP 65-034	Residential	1 Estate	12
C	33	TM 5321	Residential	36 units	360
D	34	H1 Land Development	Residential	11 Estates	132

(PP)

Pala/Pauma Cumulative Projects					
TAZ	MapID	PROJECT	LAND USE	DENSITY	TRIPS
A	5	Sycamore Ranch	Single Family	195 units (50% occ)	1275
A	6	I-15/SR-76 Gas Station	Fueling (12)	1800 trips	1800
A	10	Brooks Hills	Single Family	110 units	1110
A	11	Dulin Ranch	SF+school	(future only)	0
A	12	SR-76 Improvement Project	Construction	(future only)	0
				TOTAL ADT	4185

PP-A

Pala/Pauma Cumulative Projects					
TAZ	MapID	PROJECT	LAND USE	DENSITY	TRIPS
B	2	Rosemary Mtn Palomar Agg	Mining	Truck pce trips	60
B	4	Pipeline #6	Construction	Truck pce trips	140
B	7	I-15/SR-76 Master SP	Comm/RV	(future only)	0
B	8	Campus Park Specific Plan	School	750 students	975
B	9	Lake Rancho Viejo	Single Family	816 units (25% occupied)	2040
B	15	Meadow Wood	Mixed Resident	517 SF; 727 MF (10% occupied)	1000
B	14	Passerelle	Mixed	698 SFDU; 252 Sr Housing (5% occupied)	1000
				TOTAL ADT	5215

PP-B

Pala/Pauma Cumulative Projects					
TAZ	MapID	PROJECT	LAND USE	DENSITY	TRIPS
C	1	Pala Casino Expansion	Gaming/Hotel	70 ksf gaming+50 rm hotel	4950
C	16	TPM 20485	Residential	3 Estates	36
C	17	TPM 20725	Residential	4 Estates	48
C	18	ZAP 03043	Residential	1 Estate	12
C	19	ZAP 03056	Residential	1 Estate	12
C	23	TPM 20753	Residential	4 Estates	48
C	33	TM 5321	Residential	36 units	360
				TOTAL ADT	5466

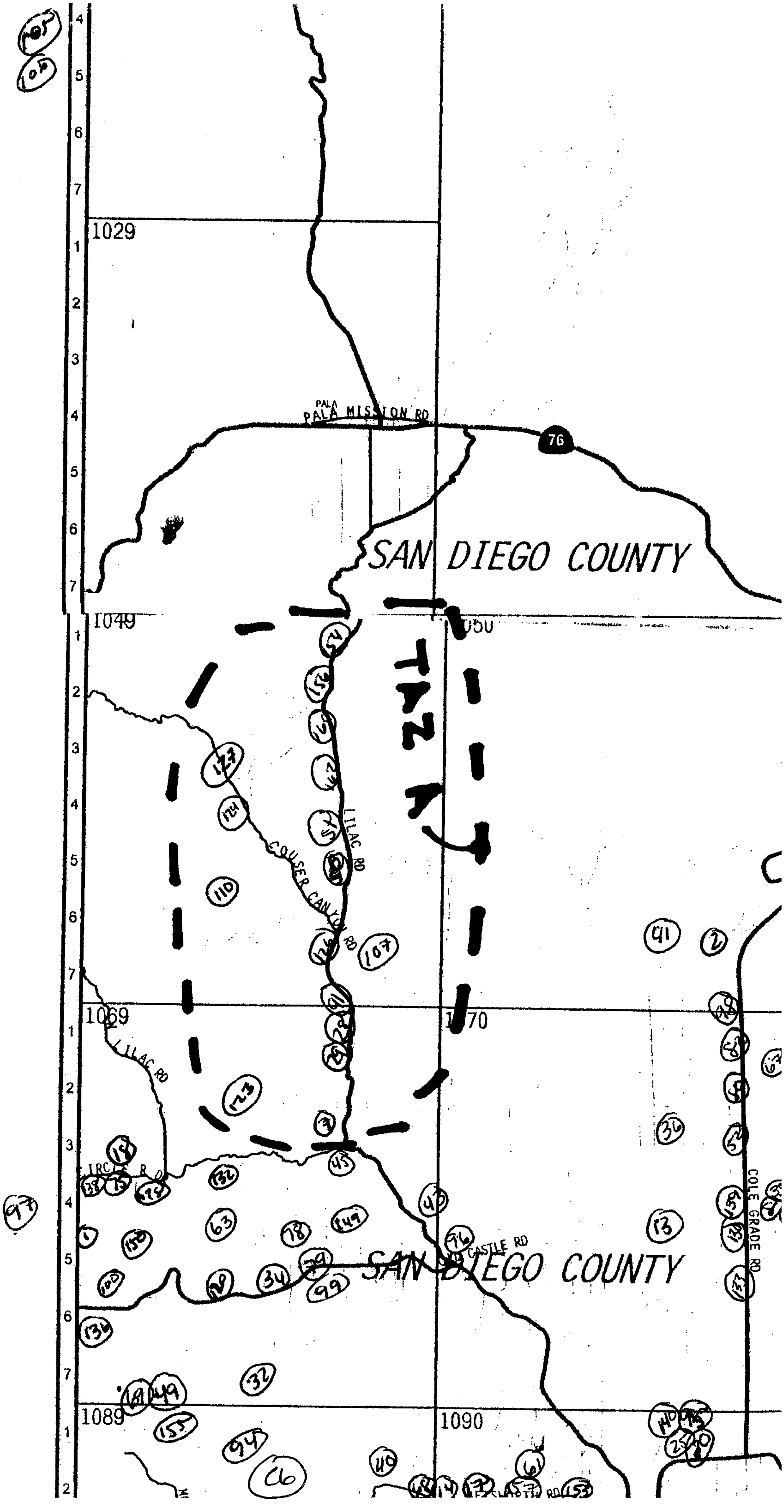
PP-C

Pala/Pauma Cumulative Projects					
TAZ	**MapID**	**PROJECT**	**LAND USE**	**DENSITY**	**TRIPS**
D	3	Calmat Pala Mine	Mining	(included in existing)	0
D	13	Pauma Valley Fruit Packing	Industrial	38,060 sq ft	240
D	20	TM 5223	Residential	46 Estates	552
D	21	TPM 20392	Residential	4 Estates	48
D	22	TPM 20611	Residential	4 Estates	48
D	24	TPM 20804	Residential	2 Estates	24
D	25	MUP 63-162	Medical	3400 sq ft	68
D	26	MUP 67-092	Campground	4 acres	16
D	27	MUP 98-011	Residential	8 Estates	96
D	28	MUP 99-011	Food Process	14,000 sq ft	70
D	29	ZAP 94-010	Residential	1 Estate	12
D	30	MUP 84-037	Church	25 trips	25
D	31	MUP 92-003	Residential	1 Estate	12
D	34	H1 Land Development	Residential	11 Estates	132
				TOTAL ADT	**1343**

PP.D

Pala/Pauma Cumulative Projects					
TAZ	**MapID**	**PROJECT**	**LAND USE**	**DENSITY**	**TRIPS**
E	32	MUP 65-034	Residential	1 Estate	12
				TOTAL ADT	**12**

PP.E



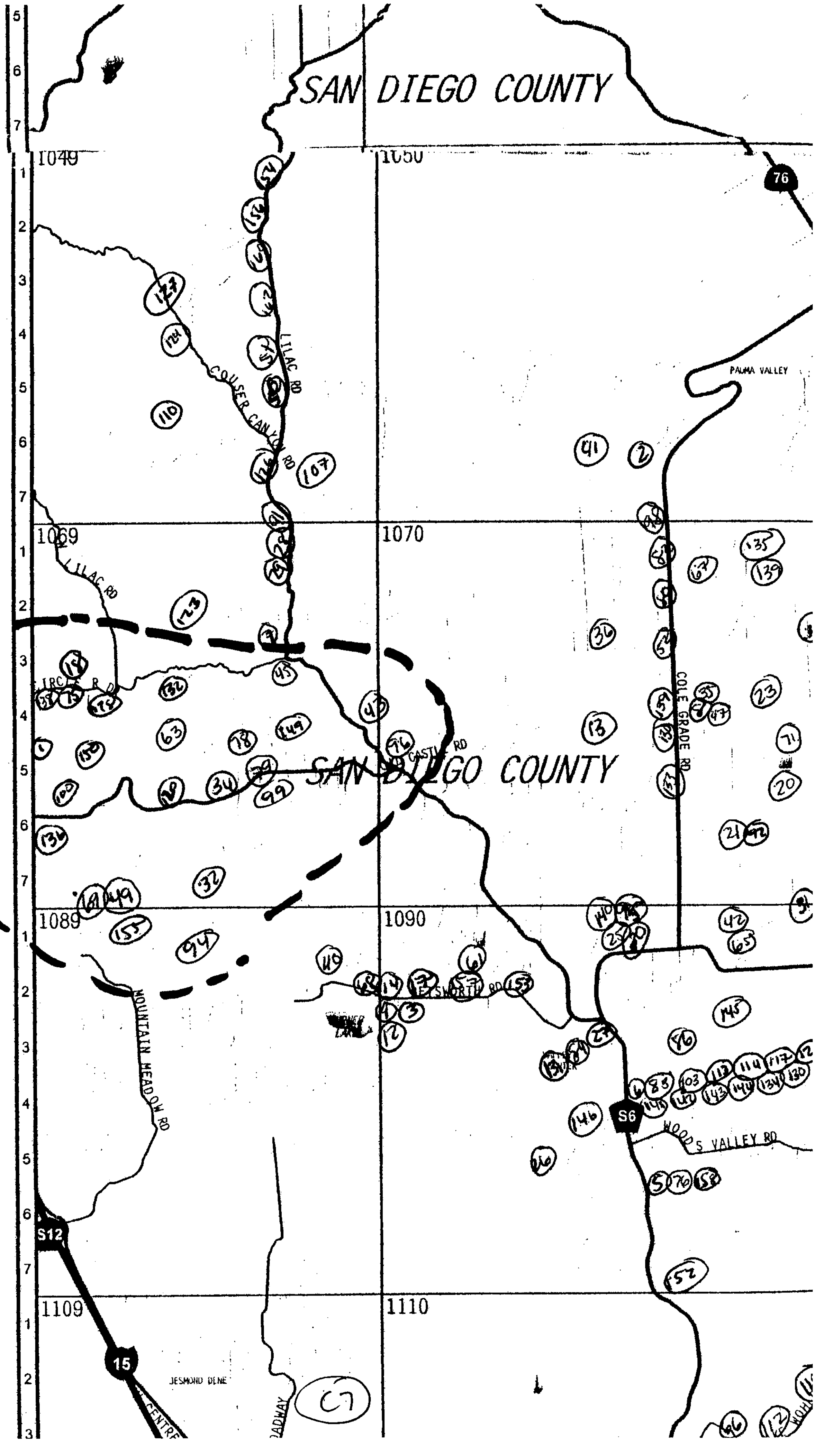
(VC-A-A)

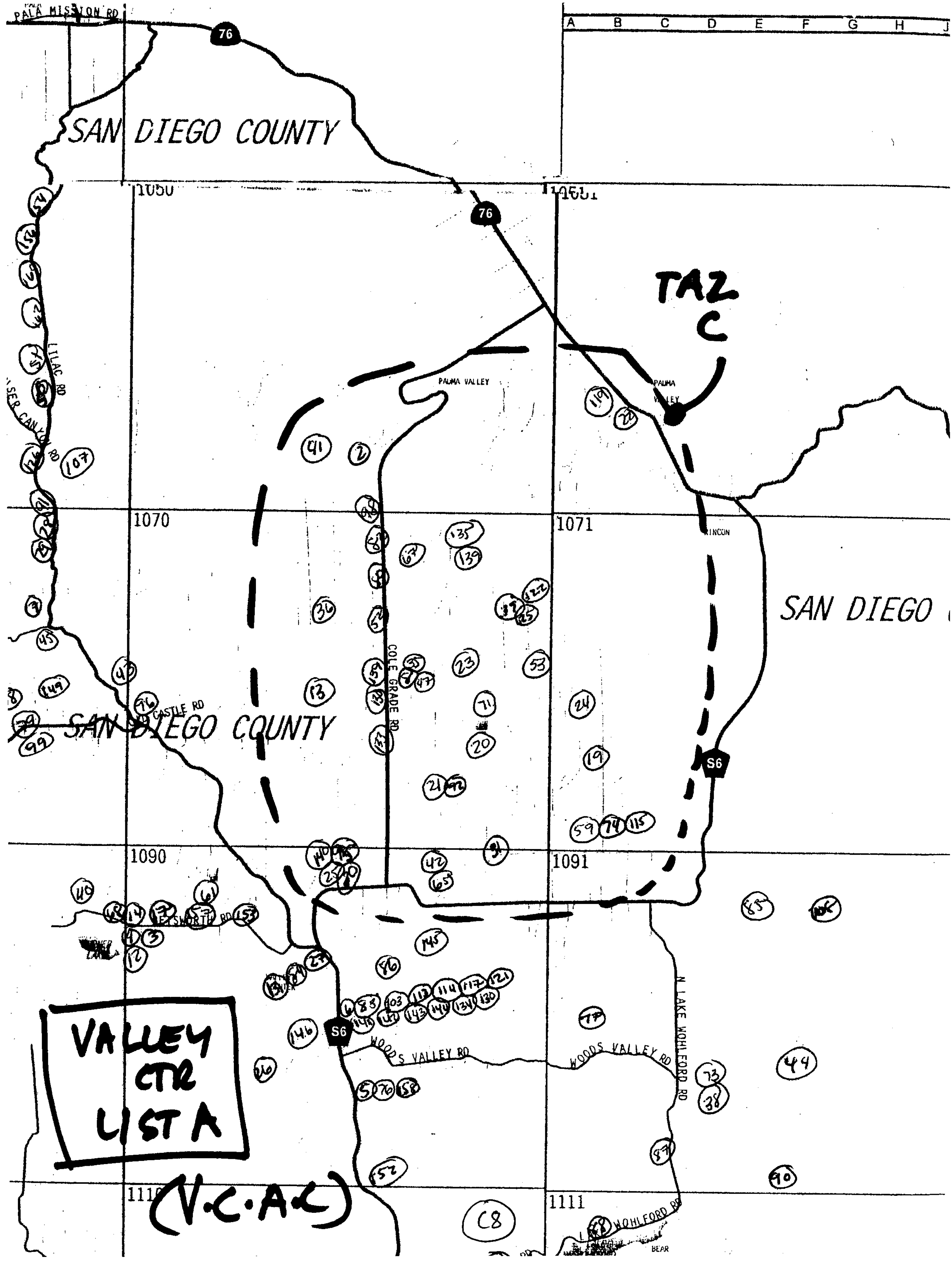
VALLEY
CTR
LIST A

TAZ B

(VG-A-B)

VALLEY CTR LIST A

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A B C D E F G H
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TAZ C
PAUMA VALLEY
LILAC RD
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1071
RINCON
SAN DIEGO
COLE GRADE RD
CASTLE RD
SAN DIEGO COUNTY
S6
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1091
N LAKE WOHLFORD RD
WOODS VALLEY RD
VALLEY CTR LIST A
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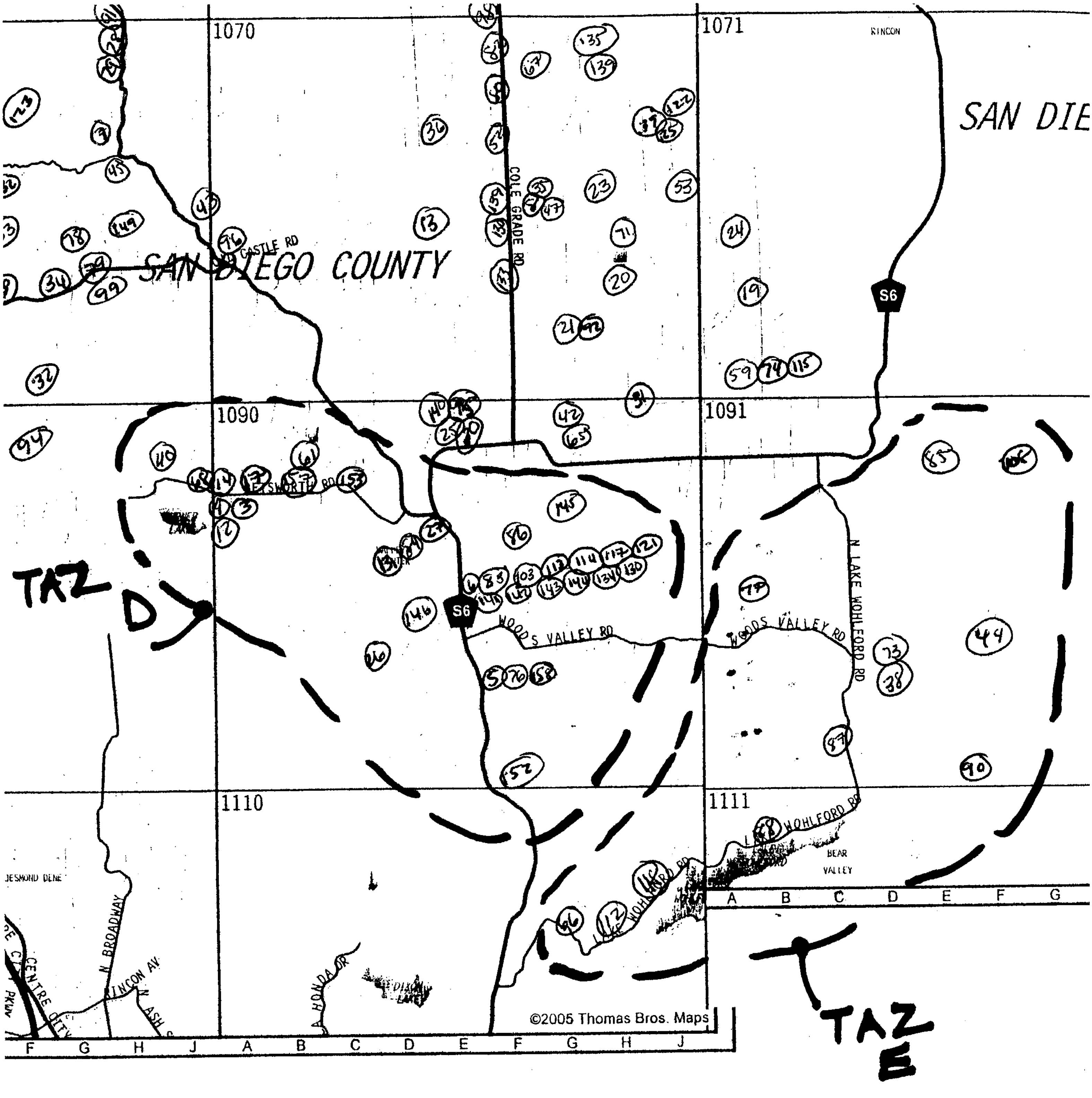
LAKE WOHLFORD RD



VALLEY CTR
UST A
(VC-A-D)
(VC-A-E)

C9

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
B	1	TM-4793	36	SF	10	360
C	2	TM-4944	11	SF	10	110
D	3	TM-4957	19	SF	10	190
B	4	TM-5001	18	SF	10	180
D	5	TM-5003	25	SF	10	250
D	6	TM-5004	218	SF+golf	10	2780
A	7	TM-5014	22	SF	10	220
C	8	TM-5028	12	SF	10	120
D	10	TM-5047	149	SF	10	1490
D	12	TM-5129	10	SF	10	100
C	13	TM-5150	8	SF	10	80
D	14	TM-5173	176	SF	10	1760
A	15	TM-5175	65	SF	10	650
D	16	TM-5176	77	SF	10	770
D	17	TM-5177	57	SF	10	570
B	18	TM-5211	48	SF	10	480
C	19	TM-5212	5	Estate	12	60
C	20	TM-5222	14	SF	10	140
C	21	TM-5251	6	SF	10	60
C	22	TM-5263	52	Estate	12	624
C	23	TM-5272	11	SF	10	110
C	24	TM-5273	7	SF	10	70
C	25	TM-5301	2	Estate	12	24
D	26	TM-5305	22	SF	10	220
D	27	TM-5308	13	SF	10	130
A	28	TM-5359	9	Estate	12	108
A	29	TM-5385	365	SF	10	3650
C	30	TM-5403	79	SF	10	790
C	31	TPM-19397	5	Estate	12	60
B	32	TPM-19952	2	Estate	12	24
B	34	TPM-20239	5	Estate	12	60
C	35	TPM-20343	4	Estate	12	48
C	36	TPM-20352	4	Estate	12	48
B	37	TPM-20360	4	Estate	12	48
E	38	TPM-20362	2	Estate	12	24
C	39	TPM-20419	3	Estate	12	36
D	40	TPM-20423	3	Estate	12	36
C	41	TPM-20435	3	Estate	12	36
C	42	TPM-20438	2	Estate	12	24
B	43	TPM-20450	4	Estate	12	48
E	44	TPM-20458	4	Estate	12	48
B	45	TPM-20460	5	Estate	12	60
B	46	TPM-20462	1	Estate	12	12
C	47	TPM-20480	5	Estate	12	60
B	49	TPM-20527	1	Estate	12	12
E	50	TPM-20595	4	Estate	12	48
B	51	TPM-20596	2	Estate	12	24
C	52	TPM-20602	4	Estate	12	48

(VC-A)

(VC-A)

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
C	53	TPM-20623	4	Estate	12	48
C	59	TPM-20661	2	Estate	12	24
B	60	TPM-20676	1	Estate	12	12
D	61	TPM-20677	3	Estate	12	36
E	62	TPM-20680	2	Estate	12	24
B	63	TPM-20685	4	Estate	12	48
A	64	TPM-20686	4	Estate	12	48
C	65	TPM-20690	5	Estate	12	60
E	66	TPM-20697	0	Estate	12	0
C	67	TPM-20707	3	Estate	12	36
D	68	TPM-20712	1	Estate	12	12
B	69	TPM-20723	2	Estate	12	24
C	71	TPM-20748	3	Estate	12	36
E	73	TPM-20780	3	Estate	12	36
C	74	TPM-20803	2	Estate	12	24
B	75	TPM-20811	1	Estate	12	12
D	76	TPM-20813	1	Estate	12	12
E	77	TPM-20825	2	Estate	12	24
B	78	TPM-20842	4	Estate	12	48
B	79	MUP-00-023	118	ac ag	2	236
C	80	MUP-01-016	135	daycare	4	540
A	81	MUP-03-075	1	wireless	0	0
C	82	MUP-03-083	1	Estate	12	12
D	83	MUP-03-102	1	Estate	12	12
E	84	MUP-03-104	3	Estate	12	36
E	85	MUP-03-105	1	Estate	12	12
D	86	MUP-03-116	1	Estate	12	12
E	87	MUP-03-118	1	wireless	0	0
E	88	MUP-03-133	1	Estate	12	12
C	89	MUP-04-007	1	Estate	12	12
E	90	MUP-04-029	10	SF	10	100
A	91	MUP-04-038	10	SF	10	100
C	92	MUP-04-041	1	Estate	12	12
B	93	MUP-72-061	1	steeple	0	0
B	94	MUP-73-188	22	ac ag	2	44
C	95	MUP-76-010	1	Estate	12	12
B	96	MUP-77-092	5	Estate	12	60
B	97	MUP-79-140	173	MFDU	8	1384
C	98	MUP-86-022	1	Estate	12	12
B	99	MUP-87-052	1	Estate	12	12
B	100	MUP-88-034	1	Estate	12	12
C	101	MUP-91-029	40	ac ag	2	80
D	103	MUP-97-013	72	ksf ag	8	576
A	105	MUP-99-005	30	beds	2.5	75
A	106	MUP-99-020	9	beds	2.5	22.5
A	107	ZAP-00-045	1	wireless	0	0
E	108	ZAP-00-085	1	Estate	12	12
B	109	ZAP-00-094	1	Estate	12	12

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
A	110	ZAP-00-102	1	Estate	12	12
E	112	ZAP-00-150	1	wireless	0	0
D	113	ZAP-00-157	1	wireless	0	0
D	114	ZAP-00-160	1	Estate	12	12
C	115	ZAP-01-007	25	ksf truck	6	150
D	117	ZAP-01-018	1	wireless	0	0
E	118	ZAP-01-095	1	wireless	0	0
C	119	ZAP-01-114	1	wireless	0	0
B	120	ZAP-02-005	1	wireless	0	0
D	121	ZAP-02-027	2	Estate	12	24
C	122	ZAP-03-001	1	Estate	12	12
A	123	ZAP-03-007	1	wireless	0	0
A	124	ZAP-03-015	1	wireless	0	0
C	125	ZAP-03-019	1	Estate	12	12
A	126	ZAP-03-038	1	Estate	12	12
A	127	ZAP-03-054	1	wireless	0	0
C	128	ZAP-03-057	1	Estate	12	12
C	129	ZAP-04-012	1	Estate	12	12
C	130	ZAP-04-024	1	Estate	12	12
D	131	ZAP-94-009	1	wireless	0	0
B	132	ZAP-98-003	10	SF	10	100
C	133	ZAP-98-007	1	Estate	12	12
D	134	ZAP-99-019	1	wireless	0	0
C	135	STP-00-024	1	Estate	12	12
C	136	STP-00-075	1	Estate	12	12
B	137	STP-01-006	1	Estate	12	12
B	138	STP-02-015	4	Estate	12	48
C	139	STP-02-071	6	ksf self stor	2	12
C	140	STP-02-074	2	Estate	12	24
D	141	STP-03-021	25	ksf auto	20	500
D	142	STP-03-022	1	Estate	12	12
D	143	STP-03-023	21.6	ksf retail	40	864
D	144	STP-03-026	81	mini stor	2	162
D	145	STP-03-052	3	Estate	12	36
D	146	STP-03-060	1	Estate	12	12
E	147	STP-03-083	1	Estate	12	12
E	148	STP-04-013	1	Estate	12	12
B	149	STP-04-022	1	Estate	12	12
B	150	STP-98-040	3	Estate	12	36
D	152	REZ-03-003	42	MF	8	336
D	153	REZ-03-018	7	SF	10	70
B	155	REZ-98-008	2	Estate	12	24
A	156	GPA-04-012	296	MF	8	2368
B	157	SP-00-001	84	SF	8	672
D	158	SP-00-002	3	Estate	12	36
A	160	SP-04-007	342	SF	10	3420
C	161	SP-93-001	149	SF	10	1490
A	162	SP-04-004	296	MF	12	3552

(VGA)

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
A	7	TM-5014	22	SF	10	220
A	15	TM-5175	65	SF	10	650
A	28	TM-5359	9	Estate	12	108
A	29	TM-5385	365	SF	10	3650
A	64	TPM-20686	4	Estate	12	48
A	81	MUP-03-075	1	wireless	0	0
A	91	MUP-04-038	10	SF	10	100
A	105	MUP-99-005	30	beds	3	90
A	106	MUP-99-020	9	beds	3	27
A	107	ZAP-00-045	1	wireless	0	0
A	110	ZAP-00-102	1	Estate	12	12
A	123	ZAP-03-007	1	wireless	0	0
A	124	ZAP-03-015	1	wireless	0	0
A	126	ZAP-03-038	1	Estate	12	12
A	127	ZAP-03-054	1	wireless	0	0
A	156	GPA-04-012	296	MF	8	2368
A	160	SP-04-007	342	SF	10	3420
A	162	SP-04-004	296	MF	12	3552
					TOTALS	14257

(VC-A-A)

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
B	1	TM-4793	36	SF	10	360
B	4	TM-5001	18	SF	10	180
B	18	TM-5211	48	SF	10	480
B	32	TPM-19952	2	Estate	12	24
B	34	TPM-20239	5	Estate	12	60
B	37	TPM-20360	4	Estate	12	48
B	43	TPM-20450	4	Estate	12	48
B	45	TPM-20460	5	Estate	12	60
B	46	TPM-20462	1	Estate	12	12
B	49	TPM-20527	1	Estate	12	12
B	51	TPM-20596	2	Estate	12	24
B	60	TPM-20676	1	Estate	12	12
B	63	TPM-20685	4	Estate	12	48
B	69	TPM-20723	2	Estate	12	24
B	75	TPM-20811	1	Estate	12	12
B	78	TPM-20842	4	Estate	12	48
B	79	MUP-00-023	118	ac ag	2	236
B	93	MUP-72-061	1	steeple	0	0
B	94	MUP-73-188	22	ac ag	2	44
B	96	MUP-77-092	5	Estate	12	60
B	97	MUP-79-140	173	MFDU	8	1384
B	99	MUP-87-052	1	Estate	12	12
B	100	MUP-88-034	1	Estate	12	12
B	109	ZAP-00-094	1	Estate	12	12
B	120	ZAP-02-005	1	wireless	0	0
B	132	ZAP-98-003	10	SF	10	100
B	137	STP-01-006	1	Estate	12	12
B	138	STP-02-015	4	Estate	12	48
B	149	STP-04-022	1	Estate	12	12
B	150	STP-98-040	3	Estate	12	36
B	155	REZ-98-008	2	Estate	12	24
B	157	SP-00-001	84	SF	8	672
					TOTALS	4116

(VC-A-B)

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
C	2	TM-4944	11	SF	10	110
C	8	TM-5028	12	SF	10	120
C	13	TM-5150	8	SF	10	80
C	19	TM-5212	5	Estate	12	60
C	20	TM-5222	14	SF	10	140
C	21	TM-5251	6	SF	10	60
C	22	TM-5263	52	Estate	12	624
C	23	TM-5272	11	SF	10	110
C	24	TM-5273	7	SF	10	70
C	25	TM-5301	2	Estate	12	24
C	30	TM-5403	79	SF	10	790
C	31	TPM-19397	5	Estate	12	60
C	35	TPM-20343	4	Estate	12	48
C	36	TPM-20352	4	Estate	12	48
C	39	TPM-20419	3	Estate	12	36
C	41	TPM-20435	3	Estate	12	36
C	42	TPM-20438	2	Estate	12	24
C	47	TPM-20480	5	Estate	12	60
C	52	TPM-20602	4	Estate	12	48
C	53	TPM-20623	4	Estate	12	48
C	59	TPM-20661	2	Estate	12	24
C	65	TPM-20690	5	Estate	12	60
C	67	TPM-20707	3	Estate	12	36
C	71	TPM-20748	3	Estate	12	36
C	74	TPM-20803	2	Estate	12	24
C	80	MUP-01-016	135	daycare	4	540
C	82	MUP-03-083	1	Estate	12	12
C	89	MUP-04-007	1	Estate	12	12
C	92	MUP-04-041	1	Estate	12	12
C	95	MUP-76-010	1	Estate	12	12
C	98	MUP-86-022	1	Estate	12	12
C	101	MUP-91-029	40	ac ag	2	80
C	115	ZAP-01-007	25	ksf truck	6	150
C	119	ZAP-01-114	1	wireless	0	0
C	122	ZAP-03-001	1	Estate	12	12
C	125	ZAP-03-019	1	Estate	12	12
C	128	ZAP-03-057	1	Estate	12	12
C	129	ZAP-04-012	1	Estate	12	12
C	130	ZAP-04-024	1	Estate	12	12
C	133	ZAP-98-007	1	Estate	12	12
C	135	STP-00-024	1	Estate	12	12
C	136	STP-00-075	1	Estate	12	12
C	139	STP-02-071	6	ksf self stor	2	12
C	140	STP-02-074	2	Estate	12	24
C	161	SP-93-001	149	SF	10	1490
					TOTALS	5228

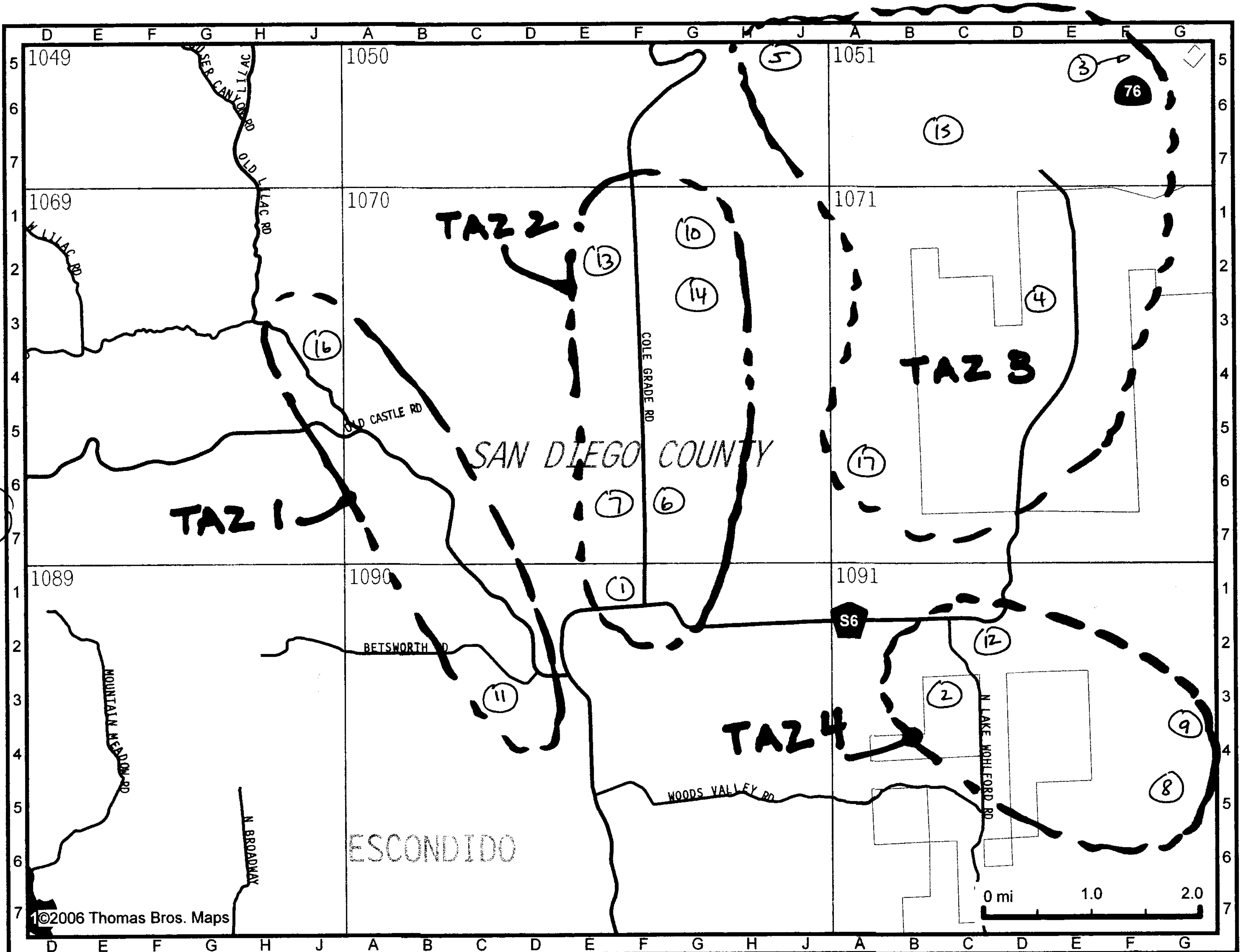
(VC-A.C)

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
D	3	TM-4957	19	SF	10	190
D	5	TM-5003	25	SF	10	250
D	6	TM-5004	218	SF+golf	10	2780
D	10	TM-5047	149	SF	10	1490
D	12	TM-5129	10	SF	10	100
D	14	TM-5173	176	SF	10	1760
D	16	TM-5176	77	SF	10	770
D	17	TM-5177	57	SF	10	570
D	26	TM-5305	22	SF	10	220
D	27	TM-5308	13	SF	10	130
D	40	TPM-20423	3	Estate	12	36
D	61	TPM-20677	3	Estate	12	36
D	68	TPM-20712	1	Estate	12	12
D	76	TPM-20813	1	Estate	12	12
D	83	MUP-03-102	1	Estate	12	12
D	86	MUP-03-116	1	Estate	12	12
D	103	MUP-97-013	72	ksf ag	8	576
D	113	ZAP-00-157	1	wireless	0	0
D	114	ZAP-00-160	1	Estate	12	12
D	117	ZAP-01-018	1	wireless	0	0
D	121	ZAP-02-027	2	Estate	12	24
D	131	ZAP-94-009	1	wireless	0	0
D	134	ZAP-99-019	1	wireless	0	0
D	141	STP-03-021	25	ksf auto	20	500
D	142	STP-03-022	1	Estate	12	12
D	143	STP-03-023	21.6	ksf retail	40	864
D	144	STP-03-026	81	mini stor	2	162
D	145	STP-03-052	3	Estate	12	36
D	146	STP-03-060	1	Estate	12	12
D	152	REZ-03-003	42	MF	8	336
D	153	REZ-03-018	7	SF	10	70
D	158	SP-00-002	3	Estate	12	36
					TOTALS	11020

(VC-A·D)

VALLEY CENTER PROJECTS (LIST A)						
TAZ	Map	County #	Density	Unit	Rate	ADT
E	38	TPM-20362	2	Estate	12	24
E	44	TPM-20458	4	Estate	12	48
E	50	TPM-20595	4	Estate	12	48
E	62	TPM-20680	2	Estate	12	24
E	66	TPM-20697	0	Estate	12	0
E	73	TPM-20780	3	Estate	12	36
E	77	TPM-20825	2	Estate	12	24
E	84	MUP-03-104	3	Estate	12	36
E	85	MUP-03-105	1	Estate	12	12
E	87	MUP-03-118	1	wireless	0	0
E	88	MUP-03-133	1	Estate	12	12
E	90	MUP-04-029	10	SF	10	100
E	108	ZAP-00-085	1	Estate	12	12
E	112	ZAP-00-150	1	wireless	0	0
E	118	ZAP-01-095	1	wireless	0	0
E	147	STP-03-083	1	Estate	12	12
E	148	STP-04-013	1	Estate	12	12
					TOTALS	400

(VC-A-E)



VALLEY CTR - LIST B (VC-B. 1-4)

C18

VALLEY CENTER PROJECTS (LIST B)							
TAZ	MapID	County#	Description	Density	Unit	Rate	ADT
2	1		VC Towne Square	Mix	Mix	Mix	15774
4	2		San Pasqual Casino	20.16	ksf	100	2016
3	3		Pauma Casino	40	ksf	100	4000
3	4		Rincon Casino	14	ksf	100	1400
3	5		Club Estates	33	Estate	12	396
n/a	---	MUP-03-188	Wireless	0	wireless	0	0
n/a	---	MUP-03-022	Butler	0	wireless	0	0
n/a	---	MUP-73-108	Temp Office Trailer	0	ksf	0	0
n/a	---	MUP-75-025	Wireless	0	wireless	0	0
n/a	---	MUP-79-152	Add Fence	0	n/a	0	0
n/a	---	MUP-94-009	Brecht/ATT	0	wireless	0	0
n/a	---	MUP-97-007	Wireless	0	wireless	0	0
n/a	---	MUP-97-146	Grading Permit	0	n/a	0	0
n/a	---	MUP-98-007	Grading Permit	0	n/a	0	0
2	6	MUP-98-026	Cole Grade Pk	8.96	ac	50	448
2	7	P-03-083	VC Church	Mix	Mix	Mix	766
n/a	---	P-03-102	Wireless	0	wireless	0	0
n/a	---	P-03-104	Wireless	0	wireless	0	0
4	8	P-03-105	Miller Dog	2.4	ksf	10	24
n/a	---	P-03-133	Wireless	0	wireless	0	0
4	9	P-04-029	Participant Sport	5	ac	5	25
n/a	---	P-04-038	Rezone (no traffic)	0	n/a	0	0
n/a	---	P-73-188	Blackington Air Strip	0	n/a	0	0
n/a	---	SP-108015	Harold Johnson	0	n/a	0	0
n/a	---	SP-208010	Preston Variance	0	n/a	0	0
n/a	---	SP-8802139-A	Grading Permit	0	n/a	0	0
n/a	---	SP-9302021-A	Grading Permit	0	n/a	0	0
n/a	---	SP-9808017	Grading Permit	0	n/a	0	0
n/a	---	STP-01-068	Wireless	0	wireless	0	0
2	10	STP-02-006	Countryside Vet	3.28	ksf	5	17
1	11	TM-5087	Orchard Run Residential	Mix	Mix	Mix	3423
4	12	TM-5152	Country Meadows Res.	8	SF	10	80
2	13	TM-5173	Lorinda	176	Estate	12	2112
2	14	TM-5232	Vesper Grove	7	SF	10	70
3	15	TPM-20436	Conway	4	SF	10	40
1	16	TPM-20470	Tebbs	3	SF	10	30
3	17	TPM-20689	Viking Grove	1	Estate	12	12
n/a	---	ZAP-00-107	Wireless	0	wireless	0	0
n/a	---	ZAP-01-114	Wireless	0	wireless	0	0
n/a	---	ZAP-01-018	Wireless	0	wireless	0	0

(VC-B)

B1

VALLEY CENTER PROJECTS (LIST B)							
TAZ	MapID	County#	Description	Density	Unit	Rate	ADT
1	11	TM-5087	Orchard Run Residential	(50% occ.)	Mix	Mix	1712
1	16	TPM-20470	Tebbs	3	SF	10	30
						TOTAL ADT	1742

B2

VALLEY CENTER PROJECTS (LIST B)							
TAZ	MapID	County#	Description	Density	Unit	Rate	ADT
2	1		VC Towne Square	(50% occ)	Mix	Mix	7890
2	6	MUP-98-026	Cole Grade Pk	8.96	ac	50	448
2	7	P-03-083	VC Church	(50% occ)	Mix	Mix	383
2	10	STP-02-006	Countryside Vet	3.28	ksf	5	16.4
2	13	TM-5173	Lorinda	176	Estate	12	2112
2	14	TM-5232	Vesper Grove	7	SF	10	70
						TOTAL ADT	10919.4

B3

VALLEY CENTER PROJECTS (LIST B)							
TAZ	MapID	County#	Description	Density	Unit	Rate	ADT
3	3		Pauma Casino	40	ksf	100	4000
3	4		Rincon Casino	14	ksf	100	1400
3	5		Club Estates	33	Estate	12	396
3	15	TPM-20436	Conway	4	SF	10	40
3	17	TPM-20689	Viking Grove	1	Estate	12	12
						TOTAL ADT	5848

B4

VALLEY CENTER PROJECTS (LIST B)							
TAZ	MapID	County#	Description	Density	Unit	Rate	ADT
4	2		San Pasqual Casino	20.16	ksf	100	2016
4	8	P-03-105	Miller Dog	2.4	ksf	10	24
4	9	P-04-029	Participant Sport	5	ac	5	25
4	12	TM-5152	Country Meadows Res.	8	SF	10	80
						TOTAL ADT	2145

(VC-B-1)
(VC-B-2)
(VC-B-3)
(VC-B-4)

APPENDIX D
Existing Conditions Worksheets

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1774	0	0	1827	1583	1770	3497	0	1770	3539	1583
Flt Permitted		0.967			0.981		0.950			0.950		
Satd. Flow (perm)	0	1774	0	0	1827	1583	1770	3497	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				62		9				123
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	281	83	45	72	111	57	38	559	49	57	484	113
Adj. Flow (vph)	305	90	49	78	121	62	41	608	53	62	526	123
Lane Group Flow (vph)	0	444	0	0	199	62	41	661	0	62	526	123
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	33.0	33.0	0.0	22.0	22.0	22.0	10.0	25.0	0.0	10.0	25.0	33.0
Total Split (%)	37%	37%	0%	24%	24%	24%	11%	28%	0%	11%	28%	37%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		25.0			24.2	24.2	5.9	20.7		5.9	22.7	25.0
Actuated g/C Ratio		0.28			0.27	0.27	0.07	0.23		0.07	0.25	0.28
v/c Ratio		0.89			0.40	0.13	0.35	0.81		0.53	0.59	0.23
Uniform Delay, d1		30.7			28.2	0.0	42.4	31.6		41.7	29.5	0.0
Delay		32.7			30.4	8.6	40.7	34.5		42.4	22.8	13.5
LOS		C			C	A	D	C		D	C	B
Approach Delay		32.7			25.2			34.9			22.9	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 70.6% ICU Level of Service C

D1

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1763	0	0	1833	1583	1770	3504	0	1770	3539	1583
Flt Permitted		0.969			0.984		0.950			0.950		
Satd. Flow (perm)	0	1763	0	0	1833	1583	1770	3504	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				28		8				286
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	220	66	60	49	101	26	72	667	48	36	642	263
Adj. Flow (vph)	239	72	65	53	110	28	78	725	52	39	698	286
Lane Group Flow (vph)	0	376	0	0	163	28	78	777	0	39	698	286
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	30.0	30.0	0.0	21.0	21.0	21.0	11.0	30.0	0.0	9.0	28.0	30.0
Total Split (%)	33%	33%	0%	23%	23%	23%	12%	33%	0%	10%	31%	33%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		21.8			23.4	23.4	6.8	27.4		5.0	24.0	21.8
Actuated g/C Ratio		0.24			0.26	0.26	0.08	0.30		0.06	0.27	0.24
v/c Ratio		0.86			0.34	0.06	0.59	0.72		0.40	0.74	0.48
Uniform Delay, d1		31.5			28.3	0.0	41.4	27.6		43.0	29.4	0.0
Delay		32.2			30.7	11.9	44.9	28.2		48.0	17.5	14.2
LOS		C			C	B	D	C		D	B	B
Approach Delay		32.2			27.9			29.8			17.7	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 68.1% ICU Level of Service B

D2

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			453						397			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	155	0	417	0	0	0	0	494	365	104	278	0
Adj. Flow (vph)	168	0	453	0	0	0	0	537	397	113	302	0
Lane Group Flow (vph)	0	168	453	0	0	0	0	537	397	113	302	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	30.0	30.0	30.0	0.0	0.0	0.0	0.0	43.0	43.0	17.0	60.0	0.0
Total Split (%)	33%	33%	33%	0%	0%	0%	0%	48%	48%	19%	67%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		37.3	37.3					32.3	32.3	10.5	44.7	
Actuated g/C Ratio		0.41	0.41					0.36	0.36	0.12	0.50	
v/c Ratio		0.23	0.49					0.80	0.48	0.54	0.33	
Uniform Delay, d1		17.6	0.0					26.0	0.0	38.7	13.1	
Delay		20.7	2.7					38.5	13.8	22.9	20.6	
LOS		C	A					D	B	C	C	
Approach Delay		7.6						28.0			21.2	
Approach LOS		A						C			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 53.9% ICU Level of Service A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			308						272			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	192	0	353	0	0	0	0	647	250	152	607	0
Adj. Flow (vph)	209	0	384	0	0	0	0	703	272	165	660	0
Lane Group Flow (vph)	0	209	384	0	0	0	0	703	272	165	660	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	25.0	25.0	25.0	0.0	0.0	0.0	0.0	48.0	48.0	17.0	65.0	0.0
Total Split (%)	28%	28%	28%	0%	0%	0%	0%	53%	53%	19%	72%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		24.2	24.2					42.2	42.2	11.6	57.8	
Actuated g/C Ratio		0.27	0.27					0.47	0.47	0.13	0.64	
v/c Ratio		0.44	0.59					0.81	0.31	0.72	0.55	
Uniform Delay, d1		27.3	5.1					20.4	0.0	37.5	8.9	
Delay		28.3	7.0					28.3	10.2	33.6	13.8	
LOS		C	A					C	B	C	B	
Approach Delay		14.5						23.3			17.8	
Approach LOS		B						C			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 67.7% ICU Level of Service B

D4

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						122						68
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	219	0	112	363	249	0	0	173	63
Adj. Flow (vph)	0	0	0	238	0	122	395	271	0	0	188	68
Lane Group Flow (vph)	0	0	0	0	238	122	395	271	0	0	188	68
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	27.0	27.0	27.0	39.0	63.0	0.0	0.0	24.0	24.0
Total Split (%)	0%	0%	0%	30%	30%	30%	43%	70%	0%	0%	27%	27%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					38.9	38.9	25.1	43.1			14.0	14.0
Actuated g/C Ratio					0.43	0.43	0.28	0.48			0.16	0.16
v/c Ratio					0.31	0.16	0.80	0.30			0.65	0.22
Uniform Delay, d1					16.7	0.0	30.1	14.3			35.7	0.0
Delay					20.3	4.8	24.1	18.3			35.0	8.2
LOS					C	A	C	B			C	A
Approach Delay					15.1			21.8			27.8	
Approach LOS					B			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 21.1 Intersection LOS: C
Intersection Capacity Utilization 54.9% ICU Level of Service A

D5

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						179						155
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	439	0	165	578	291	0	0	462	143
Adj. Flow (vph)	0	0	0	477	0	179	608	306	0	0	497	155
Lane Group Flow (vph)	0	0	0	0	477	179	608	306	0	0	497	155
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	29.0	29.0	29.0	34.0	61.0	0.0	0.0	27.0	27.0
Total Split (%)	0%	0%	0%	32%	32%	32%	38%	68%	0%	0%	30%	30%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					25.0	25.0	30.0	57.0			23.0	23.0
Actuated g/C Ratio					0.28	0.28	0.33	0.63			0.26	0.26
v/c Ratio					0.97	0.31	1.03	0.26			1.04	0.30
Uniform Delay, d1					32.1	0.0	30.0	7.2			33.5	0.0
Delay					59.5	4.3	71.4	12.9			78.8	4.8
LOS					E	A	E	B			E	A
Approach Delay					44.4			51.8			61.2	
Approach LOS					D			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 52.4 Intersection LOS: D
Intersection Capacity Utilization 96.3% ICU Level of Service E

D6

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM Peak
Freeway/Dir of Travel: I-15 Northbound On-Ramp
Junction: I-15 North/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	426	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	426		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	118		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	499		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.315 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1695 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5886	9600	No
v_{R12}	2194	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

D7

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM Peak
Freeway/Dir of Travel: I-15 Northbound On-Ramp
Junction: I-15 North/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	721	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		721			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		200			v
Trucks and buses	10		10			%
Recreational vehicles	2		2			%
Terrain type:	Level		Level			
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.949		0.949			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5387		844			pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.272 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1463 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6231	9600	No
v_{R12}	2307	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

D8

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-15 Southbound On-Ramp
Junction:	I-15 South/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	469	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	469		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	130		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	549		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.308 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1626 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5819	9600	No
v_{R12}	2175	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

D9

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Southbound On-Ramp
Junction:	I-15 South/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	402	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	402		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	112		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	471		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.318 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1677 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5741	9600	No
v_{R12}	2148	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

D10

Diverge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM
Freeway/Dir of Travel:	I-15 Northbound Off
Junction:	I-15 North Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	331	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		331			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		92			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		368			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 2436 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2436	4400	No
$v_{FO} = v_F - v_R$	4743	9600	No
v_R	368	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 20.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

D11

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	604	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		604			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		168			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		671			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 2607 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2607	4400	No
$v_{FO} = v_F - v_R$	4440	9600	No
v_R	671	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D =$ 22.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

D12

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	572	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		572			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		159			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		636			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 2587 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2587	4400	No
$v_{FO} = v_F - v_R$	4475	9600	No
v_R	636	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

D13

Diverge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM
Freeway/Dir of Travel:	I-15 Southbound Off
Junction:	I-15 South Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	545	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		545			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		151			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		606			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2570 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2570	4400	No
$v_{FO} = v_F - v_R$	4505	9600	No
v_R	606	2000	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

D14

APPENDIX E
Existing + Project Worksheets

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1774	0	0	1827	1583	1770	3497	0	1770	3539	1583
Flt Permitted		0.967			0.981		0.950			0.950		
Satd. Flow (perm)	0	1774	0	0	1827	1583	1770	3497	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				62		9				123
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	281	83	45	72	111	57	38	567	49	57	492	113
Adj. Flow (vph)	305	90	49	78	121	62	41	616	53	62	535	123
Lane Group Flow (vph)	0	444	0	0	199	62	41	669	0	62	535	123
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	33.0	33.0	0.0	22.0	22.0	22.0	10.0	25.0	0.0	10.0	25.0	33.0
Total Split (%)	37%	37%	0%	24%	24%	24%	11%	28%	0%	11%	28%	37%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		25.0			24.5	24.5	5.9	20.5		5.9	22.5	25.0
Actuated g/C Ratio		0.28			0.27	0.27	0.07	0.23		0.07	0.25	0.28
v/c Ratio		0.89			0.40	0.13	0.35	0.83		0.53	0.60	0.23
Uniform Delay, d1		30.7			28.1	0.0	42.4	31.9		41.7	29.8	0.0
Delay		32.7			30.3	8.6	40.7	35.2		37.2	23.3	12.2
LOS		C			C	A	D	D		D	C	B
Approach Delay		32.7			25.2			35.5			22.6	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 29.3 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C

E1

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1763	0	0	1833	1583	1770	3504	0	1770	3539	1583
Flt Permitted		0.969			0.984		0.950			0.950		
Satd. Flow (perm)	0	1763	0	0	1833	1583	1770	3504	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				28		8				286
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	220	66	60	49	101	26	72	677	48	36	652	263
Adj. Flow (vph)	239	72	65	53	110	28	78	736	52	39	709	286
Lane Group Flow (vph)	0	376	0	0	163	28	78	788	0	39	709	286
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	30.0	30.0	0.0	21.0	21.0	21.0	11.0	30.0	0.0	9.0	28.0	30.0
Total Split (%)	33%	33%	0%	23%	23%	23%	12%	33%	0%	10%	31%	33%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		21.8			24.8	24.8	6.8	26.0		5.0	22.6	21.8
Actuated g/C Ratio		0.24			0.28	0.28	0.08	0.29		0.06	0.25	0.24
v/c Ratio		0.86			0.32	0.06	0.59	0.77		0.40	0.80	0.48
Uniform Delay, d1		31.5			27.2	0.0	41.4	29.0		43.0	30.8	0.0
Delay		32.2			30.2	11.9	44.9	29.3		45.5	19.7	13.1
LOS		C			C	B	D	C		D	B	B
Approach Delay		32.2			27.5			30.7			18.8	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 68.4% ICU Level of Service B

E2

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			453						397			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	165	0	417	0	0	0	0	502	365	183	286	0
Adj. Flow (vph)	179	0	453	0	0	0	0	546	397	199	311	0
Lane Group Flow (vph)	0	179	453	0	0	0	0	546	397	199	311	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	28.0	28.0	28.0	0.0	0.0	0.0	0.0	41.0	41.0	21.0	62.0	0.0
Total Split (%)	31%	31%	31%	0%	0%	0%	0%	46%	46%	23%	69%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		32.1	32.1					31.5	31.5	14.3	49.9	
Actuated g/C Ratio		0.36	0.36					0.35	0.35	0.16	0.55	
v/c Ratio		0.28	0.53					0.84	0.49	0.71	0.30	
Uniform Delay, d1		20.7	0.0					26.8	0.0	35.8	10.7	
Delay		23.7	3.0					39.6	13.8	23.2	20.8	
LOS		C	A					D	B	C	C	
Approach Delay		8.8						28.7			21.7	
Approach LOS		A						C			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 59.7% ICU Level of Service A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			321						272			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	204	0	353	0	0	0	0	657	250	246	617	0
Adj. Flow (vph)	222	0	384	0	0	0	0	714	272	267	671	0
Lane Group Flow (vph)	0	222	384	0	0	0	0	714	272	267	671	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	22.0	22.0	22.0	0.0	0.0	0.0	0.0	46.0	46.0	22.0	68.0	0.0
Total Split (%)	24%	24%	24%	0%	0%	0%	0%	51%	51%	24%	76%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		20.1	20.1					41.7	41.7	16.2	61.9	
Actuated g/C Ratio		0.22	0.22					0.46	0.46	0.18	0.69	
v/c Ratio		0.56	0.64					0.83	0.31	0.84	0.52	
Uniform Delay, d1		31.0	4.7					21.0	0.0	35.6	6.9	
Delay		32.5	7.1					28.0	8.5	29.3	14.1	
LOS		C	A					C	A	C	B	
Approach Delay		16.4						22.6			18.5	
Approach LOS		B						C			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 74.7% ICU Level of Service C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						208						79
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	219	0	191	363	268	0	0	261	73
Adj. Flow (vph)	0	0	0	238	0	208	395	291	0	0	284	79
Lane Group Flow (vph)	0	0	0	0	238	208	395	291	0	0	284	79
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	25.0	25.0	25.0	37.0	65.0	0.0	0.0	28.0	28.0
Total Split (%)	0%	0%	0%	28%	28%	28%	41%	72%	0%	0%	31%	31%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					35.0	35.0	25.0	47.1			18.1	18.1
Actuated g/C Ratio					0.39	0.39	0.28	0.52			0.20	0.20
v/c Ratio					0.35	0.28	0.80	0.30			0.76	0.21
Uniform Delay, d1					19.4	0.0	30.3	12.2			33.9	0.0
Delay					23.4	4.2	27.3	21.3			33.2	6.7
LOS					C	A	C	C			C	A
Approach Delay					14.5			24.8			27.5	
Approach LOS					B			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 60.0% ICU Level of Service A

E5

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						266						160
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	439	0	258	578	313	0	0	566	155
Adj. Flow (vph)	0	0	0	453	0	266	596	323	0	0	584	160
Lane Group Flow (vph)	0	0	0	0	453	266	596	323	0	0	584	160
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	26.0	26.0	26.0	33.0	64.0	0.0	0.0	31.0	31.0
Total Split (%)	0%	0%	0%	29%	29%	29%	37%	71%	0%	0%	34%	34%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					22.0	22.0	29.0	60.0			27.0	27.0
Actuated g/C Ratio					0.24	0.24	0.32	0.67			0.30	0.30
v/c Ratio					1.05	0.45	1.05	0.26			1.04	0.27
Uniform Delay, d1					34.0	0.0	30.5	6.0			31.5	0.0
Delay					81.4	3.9	68.4	11.0			74.6	4.3
LOS					F	A	E	B			E	A
Approach Delay					52.8			48.2			59.4	
Approach LOS					D			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 53.1 Intersection LOS: D
Intersection Capacity Utilization 98.8% ICU Level of Service E

E6

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: bh
Agency/Co.: Darnell
Date Performed: 11/16/2005
Analysis Time Period: AM
Intersection: SR-76/Project Access
Jurisdiction: County SD
Units: U. S. Customary
Analysis Year: Existing+Project
Project ID: 051008 Gregory Cyn
East/West Street: SR-76
North/South Street: Project Access
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		420	98	5	265	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR		420	98	5	265	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	TWLTL			/ 5		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	98		5			
Peak Hour Factor, PHF	1.00		1.00			
Hourly Flow Rate, HFR	98		5			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		103				
C(m) (vph)		1058		611				
v/c		0.00		0.17				
95% queue length		0.01		0.60				
Control Delay		8.4		12.1				
LOS		A		B				
Approach Delay				12.1				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: bh
Agency/Co.: Darnell
Date Performed: 11/16/2005
Analysis Time Period: PM
Intersection: SR-76/Project Access
Jurisdiction: County SD
Units: U. S. Customary
Analysis Year: Existing+Project
Project ID: 051008 Gregory Cyn
East/West Street: SR-76
North/South Street: Project Access
Intersection Orientation: EW   Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		470	116	5	605	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR		470	116	5	605	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	TWLTL			/ 3		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	116		6			
Peak Hour Factor, PHF	1.00		1.00			
Hourly Flow Rate, HFR	116		6			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		122				
C(m) (vph)		999		466				
v/c		0.01		0.26				
95% queue length		0.02		1.04				
Control Delay		8.6		15.4				
LOS		A		C				
Approach Delay				15.4				
Approach LOS				C				

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM Peak
Freeway/Dir of Travel: I-15 Northbound On-Ramp
Junction: I-15 North/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing+Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	436	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	436		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	121		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%		%
Length	mi	mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	511		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.313 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1687 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5898	9600	No
v_{R12}	2198	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Northbound On-Ramp
Junction:	I-15 North/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing+Project

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	733	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		733			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		204			v
Trucks and buses	10		10			%
Recreational vehicles	2		2			%
Terrain type:	Level		Level			
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.949		0.949			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5387		858			pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.270 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1454 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6245	9600	No
v_{R12}	2312	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.0- pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

E10

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-15 Southbound On-Ramp
Junction:	I-15 South/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing+Project

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	547	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	547		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	152		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	641		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.297 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1565 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5911	9600	No
v_{R12}	2206	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

E 11

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Southbound On-Ramp
Junction:	I-15 South/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Existing+Project

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	494	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4500		494			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1250		137			v
Trucks and buses	10		10			%
Recreational vehicles	2		2			%
Terrain type:	Level		Level			
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.949		0.949			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5270		579			pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.305 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1606 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5849	9600	No
v_{R12}	2185	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

E12

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing+Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	409	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		409			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		114			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		454			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 2484 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2484	4400	No
$v_{FO} = v_F - v_R$	4657	9600	No
v_R	454	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 21.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

E13

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing+Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	696	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		696			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		193			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		773			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2664 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2664	4400	No
$v_{FO} = v_F - v_R$	4338	9600	No
v_R	773	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

E 14

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing+Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	582	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		582			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		162			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		647			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 2593 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2593	4400	No
$v_{FO} = v_F - v_R$	4464	9600	No
v_R	647	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 22.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

E 15

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Existing+Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	557	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		557			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		155			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		619			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 2578 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2578	4400	No
$v_{FO} = v_F - v_R$	4492	9600	No
v_R	619	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

E16

Two-Way Two-Lane Highway Segment Analysis

Analyst	bh
Agency/Co.	Darnell
Date Performed	1/5/2006
Analysis Time Period	PM
Highway	State Route 76
From/To	Pankey to Couser
Jurisdiction	County
Analysis Year	Existing+Project

Description 051008 - Gregory Canyon

Input Data

Highway class Class 1

Shoulder width	6.0 ft		Peak-hour factor, PHF	0.90	
Lane width	12.0 ft		% Trucks and buses	21	%
Segment length	1.5 mi		% Recreational vehicles	0	%
Terrain type	Level		% No-passing zones	100	%
Grade: Length		mi	Access points/mi	4	/mi
Up/down		%			

Two-way hourly volume, V 1316 veh/h

Directional split 57 / 43 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.979	
Two-way flow rate,(note-1) vp	1493	pc/h
Highest directional split proportion (note-2)	851	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h

Estimated Free-Flow Speed:

Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	1.0	mi/h
Free-flow speed, FFS	59.0	mi/h
Adjustment for no-passing zones, fnp	1.6	mi/h
Average travel speed, ATS	45.8	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1462	pc/h
Highest directional split proportion (note-2)	833	
Base percent time-spent-following, BPTSF	72.3	%
Adj.for directional distribution and no-passing zones, fd/np	7.7	
Percent time-spent-following, PTSF	80.0	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.47	
Peak 15-min vehicle-miles of travel, VMT15	548	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1974	veh-mi
Peak 15-min total travel time, TT15	12.0	veh-h

Two-Way Two-Lane Highway Segment Analysis

Analyst	bh
Agency/Co.	Darnell
Date Performed	1/5/2006
Analysis Time Period	PM
Highway	State Route 76
From/To	Pankey to Couser
Jurisdiction	County
Analysis Year	Existing+Project (plus 1 car)

Description 051008 - Gregory Canyon

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.90	
Lane width	12.0	ft	% Trucks and buses	21	%
Segment length	1.5	mi	% Recreational vehicles	0	%
Terrain type	Level		% No-passing zones	100	%
Grade: Length		mi	Access points/mi	4	/mi
Up/down		%			

Two-way hourly volume, V 1317 veh/h

Directional split 57 / 43 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.979	
Two-way flow rate,(note-1) vp	1494	pc/h
Highest directional split proportion (note-2)	852	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	1.0	mi/h
Free-flow speed, FFS	59.0	mi/h
Adjustment for no-passing zones, fnp	1.6	mi/h
Average travel speed, ATS	45.8	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1463	pc/h
Highest directional split proportion (note-2)	834	
Base percent time-spent-following, BPTSF	72.4	%
Adj.for directional distribution and no-passing zones, fd/np	7.7	
Percent time-spent-following, PTSF	80.0	%

Level of Service and Other Performance Measures

Level of service, LOS	E	
Volume to capacity ratio, v/c	0.47	
Peak 15-min vehicle-miles of travel, VMT15	549	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1976	veh-mi
Peak 15-min total travel time, TT15	12.0	veh-h

APPENDIX F
Near Term (No Project) Worksheets

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1776	0	0	1827	1583	1770	3497	0	1770	3539	1583
Flt Permitted		0.968			0.981		0.950			0.950		
Satd. Flow (perm)	0	1776	0	0	1827	1583	1770	3497	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				76		10				130
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	298	98	48	89	142	70	40	670	60	67	585	120
Adj. Flow (vph)	324	107	52	97	154	76	43	728	65	73	636	130
Lane Group Flow (vph)	0	483	0	0	251	76	43	793	0	73	636	130
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	33.0	33.0	0.0	20.0	20.0	20.0	10.0	27.0	0.0	10.0	27.0	33.0
Total Split (%)	37%	37%	0%	22%	22%	22%	11%	30%	0%	11%	30%	37%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		26.4			21.2	21.2	5.9	22.4		6.0	24.4	26.4
Actuated g/C Ratio		0.29			0.24	0.24	0.07	0.25		0.07	0.27	0.29
v/c Ratio		0.92			0.58	0.18	0.37	0.91		0.62	0.66	0.23
Uniform Delay, d1		30.3			31.8	0.0	42.5	31.6		42.0	29.2	0.0
Delay		35.9			40.5	8.3	40.8	37.9		40.9	22.3	9.9
LOS		D			D	A	D	D		D	C	A
Approach Delay		35.9			33.0			38.1			22.0	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 31.6 — Intersection LOS: C
Intersection Capacity Utilization 79.8% — ICU Level of Service C

F1

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1765	0	0	1833	1583	1770	3493	0	1770	3539	1583
Flt Permitted		0.970			0.984		0.950			0.950		
Satd. Flow (perm)	0	1765	0	0	1833	1583	1770	3493	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				39		11				303
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	233	85	64	59	119	36	80	825	75	61	790	279
Adj. Flow (vph)	253	92	70	64	129	39	87	897	82	66	859	303
Lane Group Flow (vph)	0	415	0	0	193	39	87	979	0	66	859	303
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	29.0	29.0	0.0	20.0	20.0	20.0	10.0	31.0	0.0	10.0	31.0	29.0
Total Split (%)	32%	32%	0%	22%	22%	22%	11%	34%	0%	11%	34%	32%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		23.1			20.2	20.2	6.0	26.7		5.9	26.7	23.1
Actuated g/C Ratio		0.26			0.22	0.22	0.07	0.30		0.07	0.30	0.26
v/c Ratio		0.90			0.47	0.10	0.74	0.94		0.57	0.82	0.48
Uniform Delay, d1		31.4			30.9	0.0	42.4	30.5		41.9	29.4	0.0
Delay		38.2			33.2	10.9	61.8	39.6		44.5	19.7	9.3
LOS		D			C	B	E	D		D	B	A
Approach Delay		38.2			29.5			41.4			18.5	
Approach LOS		D			C			D			B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 30.4 Intersection LOS: C
Intersection Capacity Utilization 77.9% ICU Level of Service C

F2

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			385						567			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	295	0	501	0	0	0	0	630	460	285	422	0
Adj. Flow (vph)	369	0	626	0	0	0	0	788	575	356	528	0
Lane Group Flow (vph)	0	369	626	0	0	0	0	788	575	356	528	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	27.0	27.0	27.0	0.0	0.0	0.0	0.0	43.0	43.0	20.0	63.0	0.0
Total Split (%)	30%	30%	30%	0%	0%	0%	0%	48%	48%	22%	70%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		23.0	23.0					39.0	39.0	16.0	59.0	
Actuated g/C Ratio		0.26	0.26					0.43	0.43	0.18	0.66	
v/c Ratio		0.82	0.91					0.98	0.57	1.13	0.43	
Uniform Delay, d1		31.5	12.0					25.0	0.2	37.0	7.4	
Delay		38.8	23.3					46.7	8.9	90.8	14.2	
LOS		D	C					D	A	F	B	
Approach Delay		29.0						30.8			45.0	
Approach LOS		C						C			D	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 34.1 Intersection LOS: C
Intersection Capacity Utilization 91.6% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239						315			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	388	0	441	0	0	0	0	830	350	396	785	0
Adj. Flow (vph)	408	0	464	0	0	0	0	874	368	404	801	0
Lane Group Flow (vph)	0	408	464	0	0	0	0	874	368	404	801	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	24.0	24.0	24.0	0.0	0.0	0.0	0.0	41.0	41.0	25.0	66.0	0.0
Total Split (%)	27%	27%	27%	0%	0%	0%	0%	46%	46%	28%	73%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		20.0	20.0					37.0	37.0	21.0	62.0	
Actuated g/C Ratio		0.22	0.22					0.41	0.41	0.23	0.69	
v/c Ratio		1.04	0.86					1.14	0.44	0.98	0.62	
Uniform Delay, d1		35.0	15.8					26.5	2.3	34.3	7.6	
Delay		82.0	25.0					93.7	11.3	28.5	17.5	
LOS		F	C					F	B	C	B	
Approach Delay		51.7						69.3			21.2	
Approach LOS		D						E			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 47.2 Intersection LOS: D
Intersection Capacity Utilization 101.0% ICU Level of Service F

F4

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						355						201
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	295	0	313	425	419	0	0	431	151
Adj. Flow (vph)	0	0	0	393	0	417	567	559	0	0	575	201
Lane Group Flow (vph)	0	0	0	0	393	417	567	559	0	0	575	201
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	28.0	28.0	28.0	35.0	62.0	0.0	0.0	27.0	27.0
Total Split (%)	0%	0%	0%	31%	31%	31%	39%	69%	0%	0%	30%	30%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					24.6	24.6	30.3	57.3			23.0	23.0
Actuated g/C Ratio					0.27	0.27	0.34	0.64			0.26	0.26
v/c Ratio					0.81	0.60	0.95	0.47			1.21	0.36
Uniform Delay, d1					30.5	3.7	29.0	8.4			33.5	0.0
Delay					38.7	5.7	27.8	15.7			123.3	4.3
LOS					D	A	C	B			F	A
Approach Delay					21.7			21.8			92.5	
Approach LOS					C			C			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 42.0 Intersection LOS: D
Intersection Capacity Utilization 93.4% ICU Level of Service E

FS

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						305						246
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	579	0	450	663	570	0	0	818	317
Adj. Flow (vph)	0	0	0	629	0	489	698	600	0	0	880	345
Lane Group Flow (vph)	0	0	0	0	629	489	698	600	0	0	880	345
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	31.0	28.0	59.0	0.0	0.0	31.0	31.0
Total Split (%)	0%	0%	0%	34%	34%	34%	31%	66%	0%	0%	34%	34%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					27.0	27.0	24.0	55.0			27.0	27.0
Actuated g/C Ratio					0.30	0.30	0.27	0.61			0.30	0.30
v/c Ratio					1.18	0.71	1.48	0.53			1.57	0.53
Uniform Delay, d1					31.5	9.7	33.0	10.0			31.5	6.8
Delay					114.1	10.5	184.9	19.8			209.4	8.1
LOS					F	B	F	B			F	A
Approach Delay					68.8			108.6			152.7	
Approach LOS					E			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.57
Intersection Signal Delay: 111.2 — Intersection LOS: F
Intersection Capacity Utilization 129.8% — ICU Level of Service H

HCS2000: Ramps and Ramp Junctions Release 4.1f

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM Peak
Freeway/Dir of Travel: I-15 Northbound On-Ramp
Junction: I-15 North/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Near Term (no project)
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	576	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	576		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	160		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	675		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.293 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1577 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6062	9600	No
v_{R12}	2252	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

F7

HCS2000: Ramps and Ramp Junctions Release 4.1f

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Northbound On-Ramp
Junction:	I-15 North/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near Term (no project)

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	980	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	980		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	272		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	1148		pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 25-2 or 25-3)

$P_{FM} = 0.234$ Using Equation 4

$v_{12} = v_F (P_{FM}) = 1258$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6535	9600	No
v_{R12}	2406	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 20.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

HCS2000: Ramps and Ramp Junctions Release 4.1f

```
______________________________Diverge Analysis_______________________________

Analyst:                    bh
Agency/Co.:                 Darnell
Date performed:             11/17/2005
Analysis time period:       AM
Freeway/Dir of Travel:      I-15 Northbound Off
Junction:                   I-15 North Off/State Route 76
Jurisdiction:               County SD/Caltrans
Analysis Year:              Near term (no project)
Description:  051008 - Gregory Canyon

________________________________Freeway Data_________________________________

Type of analysis                              Diverge
Number of lanes in freeway                    4
Free-flow speed on freeway                    70.0          mph
Volume on freeway                             4600          vph

_______________________________Off Ramp Data_________________________________

Side of freeway                               Right
Number of lanes in ramp                       1
Free-Flow speed on ramp                       35.0          mph
Volume on ramp                                608           vph
Length of first accel/decel lane              500           ft
Length of second accel/decel lane                           ft

______________________Adjacent Ramp Data (if one exists)_____________________

Does adjacent ramp exist?                     No
Volume on adjacent ramp                                     vph
Position of adjacent ramp
Type of adjacent ramp
Distance to adjacent ramp                                   ft

__________________Conversion to pc/h Under Base Conditions__________________

Junction Components                     Freeway     Ramp        Adjacent
                                                                Ramp
Volume, V (vph)                         4600        608                 vph
Peak-hour factor, PHF                   0.90        0.90
Peak 15-min volume, v15                 1278        169                 v
Trucks and buses                        21          21                  %
Recreational vehicles                   0           0                   %
Terrain type:                           Level       Level
     Grade                              0.00    %   0.00    %           %
     Length                             0.00    mi  0.00    mi          mi
Trucks and buses PCE, ET                1.5         1.5
Recreational vehicle PCE, ER            1.2         1.2
Heavy vehicle adjustment, fHV           0.905       0.905
Driver population factor, fP            1.00        1.00
Flow rate, vp                           5648        746                 pcph

_________________________Estimation of V12 Diverge Areas_____________________

                  L  =                (Equation 25-8 or 25-9)
                   EQ
                  P  =    0.436       Using Equation  8
                   FD
                  v  = v  + (v - v ) P  =  2883    pc/h
                   12   R      F   R   FD

_____________________________Capacity Checks_________________________________

                        Actual          Maximum         LOS F?
    v  = v              5648            9600            No
     Fi   F
    v                   2883            4400            No
     12
    v  = v - v          4902            9600            No
     FO   F   R
    v                   746             2000            No
     R

_________________Level of Service Determination (if not F)__________________

Density,              D = 4.252 + 0.0086 v  - 0.009  L   =   24.5    pc/mi/ln
                        R                 12           D
Level of service for ramp-freeway junction areas of influence C
```

F9

HCS2000: Ramps and Ramp Junctions Release 4.1f

Diverge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM
Freeway/Dir of Travel:	I-15 Northbound Off
Junction:	I-15 North Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near term (no project)
Description:	051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1029	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1029			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		286			v
Trucks and buses	21		21			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.905		0.905			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5648		1263			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3175 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5648	9600	No
v_{12}	3175	4400	No
$v_{FO} = v_F - v_R$	4385	9600	No
v_R	1263	2000	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 27.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

F10

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-15 Southbound On-Ramp
Junction:	I-15 South/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near term (no project)

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	745	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	745		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	207		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	872		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.268 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1413 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6142	9600	No
v_{R12}	2285	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

HCS2000: Ramps and Ramp Junctions Release 4.1f

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM Peak
Freeway/Dir of Travel: I-15 Southbound On-Ramp
Junction: I-15 South/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Near term (no project)
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	746	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	746		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	207		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	874		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.268 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1411 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6144	9600	No
v_{R12}	2285	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

F12

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Near Term (no project)
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	796	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		796			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		221			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		884			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2727 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2727	4400	No
$v_{FO} = v_F - v_R$	4227	9600	No
v_R	884	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 23.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

E13

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HCS2000: Ramps and Ramp Junctions Release 4.1f

_________________________________Diverge Analysis__________________________________

Analyst:                    bh
Agency/Co.:                 Darnell
Date performed:             11/17/2005
Analysis time period:       PM
Freeway/Dir of Travel:      I-15 Southbound Off
Junction:                   I-15 South Off/State Route 76
Jurisdiction:               County SD/Caltrans
Analysis Year:              Near Term (no project)
Description:  051008 - Gregory Canyon

__________________________________Freeway Data_____________________________________

Type of analysis                              Diverge
Number of lanes in freeway                    4
Free-flow speed on freeway                    70.0          mph
Volume on freeway                             4600          vph

_________________________________Off Ramp Data_____________________________________

Side of freeway                               Right
Number of lanes in ramp                       1
Free-Flow speed on ramp                       35.0          mph
Volume on ramp                                829           vph
Length of first accel/decel lane              500           ft
Length of second accel/decel lane                           ft

_________________________Adjacent Ramp Data (if one exists)________________________

Does adjacent ramp exist?                     No
Volume on adjacent ramp                                     vph
Position of adjacent ramp
Type of adjacent ramp
Distance to adjacent ramp                                   ft

___________________Conversion to pc/h Under Base Conditions________________________

Junction Components                      Freeway       Ramp          Adjacent
                                                                     Ramp
Volume, V (vph)                          4600          829                      vph
Peak-hour factor, PHF                    0.90          0.90
Peak 15-min volume, v15                  1278          230                      v
Trucks and buses                         0             0                        %
Recreational vehicles                    0             0                        %
Terrain type:                            Level         Level
     Grade                               0.00     %    0.00     %               %
     Length                              0.00     mi   0.00     mi              mi
Trucks and buses PCE, ET                 1.5           1.5
Recreational vehicle PCE, ER             1.2           1.2
Heavy vehicle adjustment, fHV            1.000         1.000
Driver population factor, fP             1.00          1.00
Flow rate, vp                            5111          921                      pcph

_________________________Estimation of V12 Diverge Areas___________________________

                  L  =               (Equation 25-8 or 25-9)
                   EQ
                  P  =     0.436     Using Equation  8
                   FD
                  v  = v  + (v - v ) P  =  2748   pc/h
                   12   R     F   R   FD

_______________________________Capacity Checks_____________________________________

                          Actual        Maximum        LOS F?
       v  = v             5111          9600           No
        Fi   F
       v                  2748          4400           No
        12
       v  = v - v         4190          9600           No
        FO   F   R
       v                  921           2000           No
        R

_________________Level of Service Determination (if not F)_________________________

Density,              D = 4.252 + 0.0086 v  - 0.009  L   =   23.4   pc/mi/ln
                        R                  12          D
Level of service for ramp-freeway junction areas of influence C
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F14

APPENDIX G
Near Term (With Project) Worksheets

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1776	0	0	1827	1583	1770	3497	0	1770	3539	1583
Flt Permitted		0.968			0.981		0.950			0.950		
Satd. Flow (perm)	0	1776	0	0	1827	1583	1770	3497	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				76		10				130
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	298	98	48	89	142	70	40	678	60	67	593	120
Adj. Flow (vph)	324	107	52	97	154	76	43	737	65	73	645	130
Lane Group Flow (vph)	0	483	0	0	251	76	43	802	0	73	645	130
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	33.0	33.0	0.0	20.0	20.0	20.0	10.0	27.0	0.0	10.0	27.0	33.0
Total Split (%)	37%	37%	0%	22%	22%	22%	11%	30%	0%	11%	30%	37%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		26.4			21.2	21.2	5.9	22.4		6.0	24.4	26.4
Actuated g/C Ratio		0.29			0.24	0.24	0.07	0.25		0.07	0.27	0.29
v/c Ratio		0.92			0.59	0.18	0.37	0.91		0.62	0.67	0.23
Uniform Delay, d1		30.3			31.9	0.0	42.5	31.7		42.0	29.2	0.0
Delay		35.9			40.5	8.3	40.8	38.7		38.5	23.2	8.7
LOS		D			D	A	D	D		D	C	A
Approach Delay		35.9			33.0			38.8			22.3	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 80.0% ICU Level of Service D

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1765	0	0	1833	1583	1770	3497	0	1770	3539	1583
Flt Permitted		0.970			0.984		0.950			0.950		
Satd. Flow (perm)	0	1765	0	0	1833	1583	1770	3497	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				39		11				303
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	233	85	64	59	119	36	80	835	75	61	800	279
Adj. Flow (vph)	253	92	70	64	129	39	87	908	82	66	870	303
Lane Group Flow (vph)	0	415	0	0	193	39	87	990	0	66	870	303
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	29.0	29.0	0.0	20.0	20.0	20.0	10.0	31.0	0.0	10.0	31.0	29.0
Total Split (%)	32%	32%	0%	22%	22%	22%	11%	34%	0%	11%	34%	32%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		23.2			20.0	20.0	6.0	26.8		5.9	26.8	23.2
Actuated g/C Ratio		0.26			0.22	0.22	0.07	0.30		0.07	0.30	0.26
v/c Ratio		0.90			0.47	0.10	0.74	0.94		0.57	0.82	0.48
Uniform Delay, d1		31.3			31.1	0.0	42.4	30.5		41.9	29.4	0.0
Delay		38.2			33.3	10.9	61.8	40.9		47.1	31.2	3.4
LOS		D			C	B	E	D		D	C	A
Approach Delay		38.2			29.5			42.6			25.3	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 33.7 Intersection LOS: C
Intersection Capacity Utilization 78.2% ICU Level of Service C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			398						559			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	305	0	501	0	0	0	0	638	460	364	430	0
Adj. Flow (vph)	381	0	626	0	0	0	0	798	575	455	538	0
Lane Group Flow (vph)	0	381	626	0	0	0	0	798	575	455	538	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	24.0	24.0	24.0	0.0	0.0	0.0	0.0	43.0	43.0	23.0	66.0	0.0
Total Split (%)	27%	27%	27%	0%	0%	0%	0%	48%	48%	26%	73%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		20.0	20.0					39.0	39.0	19.0	62.0	
Actuated g/C Ratio		0.22	0.22					0.43	0.43	0.21	0.69	
v/c Ratio		0.97	0.95					0.99	0.57	1.22	0.42	
Uniform Delay, d1		34.7	12.3					25.3	0.4	35.5	6.1	
Delay		66.0	30.6					50.0	9.2	114.2	12.9	
LOS		E	C					D	A	F	B	
Approach Delay		44.0						32.9			59.3	
Approach LOS		D						C			E	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 44.0 Intersection LOS: D
Intersection Capacity Utilization 98.3% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			235						303			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	400	0	441	0	0	0	0	840	350	490	795	0
Adj. Flow (vph)	421	0	464	0	0	0	0	884	365	500	811	0
Lane Group Flow (vph)	0	421	464	0	0	0	0	884	365	500	811	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	24.0	24.0	24.0	0.0	0.0	0.0	0.0	40.0	40.0	26.0	66.0	0.0
Total Split (%)	27%	27%	27%	0%	0%	0%	0%	44%	44%	29%	73%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		20.0	20.0					36.0	36.0	22.0	62.0	
Actuated g/C Ratio		0.22	0.22					0.40	0.40	0.24	0.69	
v/c Ratio		1.07	0.87					1.19	0.45	1.15	0.63	
Uniform Delay, d1		35.0	16.2					27.0	2.9	34.0	7.7	
Delay		89.9	25.8					103.6	12.0	48.9	18.7	
LOS		F	C					F	B	D	B	
Approach Delay		56.2						76.8			30.2	
Approach LOS		E						E			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 53.8 Intersection LOS: D
Intersection Capacity Utilization 107.6% ICU Level of Service F

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						377						192
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	295	0	392	425	438	0	0	519	161
Adj. Flow (vph)	0	0	0	393	0	523	567	548	0	0	649	201
Lane Group Flow (vph)	0	0	0	0	393	523	567	548	0	0	649	201
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	26.0	26.0	26.0	34.0	64.0	0.0	0.0	30.0	30.0
Total Split (%)	0%	0%	0%	29%	29%	29%	38%	71%	0%	0%	33%	33%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					22.1	22.1	29.9	59.9			26.0	26.0
Actuated g/C Ratio					0.25	0.25	0.33	0.67			0.29	0.29
v/c Ratio					0.90	0.78	0.96	0.44			1.21	0.34
Uniform Delay, d1					32.9	8.1	29.5	7.1			32.0	1.0
Delay					50.5	11.3	25.5	13.5			121.1	4.6
LOS					D	B	C	B			F	A
Approach Delay					28.1			19.6			93.6	
Approach LOS					C			B			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 44.1 Intersection LOS: D
Intersection Capacity Utilization 97.3% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						290						227
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	579	0	543	663	592	0	0	922	329
Adj. Flow (vph)	0	0	0	629	0	590	698	623	0	0	991	358
Lane Group Flow (vph)	0	0	0	0	629	590	698	623	0	0	991	358
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	31.0	28.0	59.0	0.0	0.0	31.0	31.0
Total Split (%)	0%	0%	0%	34%	34%	34%	31%	66%	0%	0%	34%	34%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					27.0	27.0	24.0	55.0			27.0	27.0
Actuated g/C Ratio					0.30	0.30	0.27	0.61			0.30	0.30
v/c Ratio					1.18	0.87	1.48	0.55			1.77	0.56
Uniform Delay, d1					31.5	14.6	33.0	10.2			31.5	8.9
Delay					114.1	22.3	171.5	21.0			242.7	9.9
LOS					F	C	F	C			F	A
Approach Delay					69.7			100.5			180.9	
Approach LOS					E			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.77
Intersection Signal Delay: 118.7 Intersection LOS: F
Intersection Capacity Utilization 135.7% ICU Level of Service H

HCS2000: Ramps and Ramp Junctions Release 4.1f

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-15 Northbound On-Ramp
Junction:	I-15 North/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near Term (with project)

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	586	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		586			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		163			v
Trucks and buses	10		10			%
Recreational vehicles	2		2			%
Terrain type:	Level		Level			
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.949		0.949			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5387		686			pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.291 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1569 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6073	9600	No
v_{R12}	2255	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 19.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

HCS2000: Ramps and Ramp Junctions Release 4.1f

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Northbound On-Ramp
Junction:	I-15 North/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near Term (with project)

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	992	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	992		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	276		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	1162		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.232 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1249 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6549	9600	No
v_{R12}	2411	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

HCS2000: Ramps and Ramp Junctions Release 4.1f

Diverge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM
Freeway/Dir of Travel:	I-15 Northbound Off
Junction:	I-15 North Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near term (with project)

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	687	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		687			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		191			v
Trucks and buses	21		21			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.905		0.905			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5648		843			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2938 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5648	9600	No
v_{12}	2938	4400	No
$v_{FO} = v_F - v_R$	4805	9600	No
v_R	843	2000	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 25.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

G9

HCS2000: Ramps and Ramp Junctions Release 4.1f

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Near term (with project)
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1122	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1122			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		312			v
Trucks and buses	21		21			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.905		0.905			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5648		1378			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3240 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5648	9600	No
v_{12}	3240	4400	No
$v_{FO} = v_F - v_R$	4270	9600	No
v_R	1378	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 27.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

G10

HCS2000: Ramps and Ramp Junctions Release 4.1f

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM Peak
Freeway/Dir of Travel: I-15 Southbound On-Ramp
Junction: I-15 South/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Near term (with project)
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	824	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	824		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	229		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	965		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.256 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1352 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6235	9600	No
v_{R12}	2317	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.0- pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

HCS2000: Ramps and Ramp Junctions Release 4.1f

______Merge Analysis______

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM Peak
Freeway/Dir of Travel: I-15 Southbound On-Ramp
Junction: I-15 South/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: Near term (with project)
Description: 051008 - Gregory Canyon

______Freeway Data______

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

______On Ramp Data______

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	840	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

______Adjacent Ramp Data (if one exists)______

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

______Conversion to pc/h Under Base Conditions______

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	840		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	233		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	984		pcph

______Estimation of V12 Merge Areas______

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.254 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1339 pc/h

______Capacity Checks______

	Actual	Maximum	LOS F?
v_{FO}	6254	9600	No
v_{R12}	2323	4600	No

______Level of Service Determination (if not F)______

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.0+ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

HCS2000: Ramps and Ramp Junctions Release 4.1f

Diverge Analysis

```
Analyst:                    bh
Agency/Co.:                 Darnell
Date performed:             11/17/2005
Analysis time period:       AM
Freeway/Dir of Travel:      I-15 Southbound Off
Junction:                   I-15 South Off/State Route 76
Jurisdiction:               County SD/Caltrans
Analysis Year:              Near Term (with project)
Description:  051008 - Gregory Canyon
```

Freeway Data

```
Type of analysis                         Diverge
Number of lanes in freeway               4
Free-flow speed on freeway               70.0          mph
Volume on freeway                        4600          vph
```

Off Ramp Data

```
Side of freeway                          Right
Number of lanes in ramp                  1
Free-Flow speed on ramp                  35.0          mph
Volume on ramp                           806           vph
Length of first accel/decel lane         500           ft
Length of second accel/decel lane                      ft
```

Adjacent Ramp Data (if one exists)

```
Does adjacent ramp exist?                No
Volume on adjacent ramp                                vph
Position of adjacent ramp
Type of adjacent ramp
Distance to adjacent ramp                              ft
```

Conversion to pc/h Under Base Conditions

```
Junction Components               Freeway      Ramp         Adjacent
                                                            Ramp
Volume, V (vph)                   4600         806                    vph
Peak-hour factor, PHF             0.90         0.90
Peak 15-min volume, v15           1278         224                    v
Trucks and buses                  0            0                      %
Recreational vehicles             0            0                      %
Terrain type:                     Level        Level
     Grade                        0.00    %    0.00    %         %
     Length                       0.00    mi   0.00    mi        mi
Trucks and buses PCE, ET          1.5          1.5
Recreational vehicle PCE, ER      1.2          1.2
Heavy vehicle adjustment, fHV     1.000        1.000
Driver population factor, fP      1.00         1.00
Flow rate, vp                     5111         896                    pcph
```

Estimation of V12 Diverge Areas

```
                 L   =               (Equation 25-8 or 25-9)
                  EQ
                 P   =    0.436     Using Equation  8
                  FD
                 v  = v   + (v - v ) P  =  2734    pc/h
                  12   R      F   R   FD
```

Capacity Checks

```
                       Actual        Maximum        LOS F?
     v  = v            5111          9600           No
      Fi   F
     v                 2734          4400           No
      12
     v  = v - v        4215          9600           No
      FO   F   R
     v                 896           2000           No
      R
```

Level of Service Determination (if not F)

```
Density,             D = 4.252 + 0.0086 v   - 0.009  L   =   23.3    pc/mi/ln
                                         R          12     D
Level of service for ramp-freeway junction areas of influence C
```

G13

HCS2000: Ramps and Ramp Junctions Release 4.1f

Diverge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM
Freeway/Dir of Travel:	I-15 Southbound Off
Junction:	I-15 South Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	Near Term (with project)

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	841	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		841			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		234			v
Trucks and buses	0		0			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	1.000		1.000			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5111		934			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2755 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5111	9600	No
v_{12}	2755	4400	No
$v_{FO} = v_F - v_R$	4177	9600	No
v_R	934	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

G14

APPENDIX H
Year 2030 (No Project) Worksheets

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1772	0	0	1824	1583	1770	3504	0	1770	3539	1583
Flt Permitted		0.966			0.979		0.950			0.950		
Satd. Flow (perm)	0	1772	0	0	1824	1583	1770	3504	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				103		8				143
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	402	108	62	116	156	95	44	886	63	74	747	132
Adj. Flow (vph)	437	117	67	126	170	103	48	963	68	80	812	143
Lane Group Flow (vph)	0	621	0	0	296	103	48	1031	0	80	812	143
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	33.0	33.0	0.0	21.0	21.0	21.0	8.0	28.0	0.0	8.0	28.0	33.0
Total Split (%)	37%	37%	0%	23%	23%	23%	9%	31%	0%	9%	31%	37%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		29.0			17.0	17.0	4.0	24.0		4.0	25.6	29.0
Actuated g/C Ratio		0.32			0.19	0.19	0.04	0.27		0.04	0.28	0.32
v/c Ratio		1.08			0.86	0.27	0.61	1.10		1.01	0.81	0.24
Uniform Delay, d1		30.1			36.1	0.0	43.0	32.3		43.0	29.9	0.0
Delay		81.6			49.3	7.0	59.5	83.6		88.3	24.3	6.9
LOS		F			D	A	E	F		F	C	A
Approach Delay		81.6			38.4			82.5			26.8	
Approach LOS		F			D			F			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 58.3 Intersection LOS: E
Intersection Capacity Utilization 97.0% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1763	0	0	1829	1583	1770	3500	0	1770	3539	1583
Flt Permitted		0.969			0.982		0.950			0.950		
Satd. Flow (perm)	0	1763	0	0	1829	1583	1770	3500	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				52		9				334
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	315	93	83	77	131	48	84	1061	81	67	997	307
Adj. Flow (vph)	342	101	90	84	142	52	91	1153	88	73	1084	334
Lane Group Flow (vph)	0	533	0	0	226	52	91	1241	0	73	1084	334
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	29.0	29.0	0.0	20.0	20.0	20.0	9.0	33.0	0.0	8.0	32.0	29.0
Total Split (%)	32%	32%	0%	22%	22%	22%	10%	37%	0%	9%	36%	32%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		25.0			16.0	16.0	5.0	29.0		4.0	28.0	25.0
Actuated g/C Ratio		0.28			0.18	0.18	0.06	0.32		0.04	0.31	0.28
v/c Ratio		1.07			0.70	0.16	0.93	1.09		0.92	0.98	0.49
Uniform Delay, d1		31.8			34.7	0.0	42.3	30.3		42.8	30.8	0.0
Delay		83.0			38.1	9.7	102.8	79.2		48.5	29.0	4.3
LOS		F			D	A	F	E		D	C	A
Approach Delay		83.0			32.8			80.8			24.4	
Approach LOS		F			C			F			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 54.3 Intersection LOS: D
Intersection Capacity Utilization 93.9% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			307						487			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	420	0	657	0	0	0	0	978	601	321	495	0
Adj. Flow (vph)	525	0	821	0	0	0	0	1222	751	401	619	0
Lane Group Flow (vph)	0	525	821	0	0	0	0	1222	751	401	619	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	29.0	29.0	29.0	0.0	0.0	0.0	0.0	44.0	44.0	17.0	61.0	0.0
Total Split (%)	32%	32%	32%	0%	0%	0%	0%	49%	49%	19%	68%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		25.0	25.0					40.0	40.0	13.0	57.0	
Actuated g/C Ratio		0.28	0.28					0.44	0.44	0.14	0.63	
v/c Ratio		1.07	1.24					1.48	0.77	1.57	0.52	
Uniform Delay, d1		32.5	17.4					25.0	6.4	38.5	9.1	
Delay		83.0	121.2					187.7	15.5	188.9	19.5	
LOS		F	F					F	B	F	B	
Approach Delay		106.3						122.2			86.1	
Approach LOS		F						F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.57
Intersection Signal Delay: 108.8 Intersection LOS: F
Intersection Capacity Utilization 125.7% ICU Level of Service H

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108						282			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	457	0	585	0	0	0	0	1266	451	454	1035	0
Adj. Flow (vph)	497	0	636	0	0	0	0	1376	490	493	1125	0
Lane Group Flow (vph)	0	497	636	0	0	0	0	1376	490	493	1125	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	28.0	28.0	28.0	0.0	0.0	0.0	0.0	44.0	44.0	18.0	62.0	0.0
Total Split (%)	31%	31%	31%	0%	0%	0%	0%	49%	49%	20%	69%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		24.0	24.0					40.0	40.0	14.0	58.0	
Actuated g/C Ratio		0.27	0.27					0.44	0.44	0.16	0.64	
v/c Ratio		1.05	1.27					1.66	0.57	1.79	0.94	
Uniform Delay, d1		33.0	25.9					25.0	7.0	38.0	14.3	
Delay		80.6	136.0					222.4	13.8	161.5	30.6	
LOS		F	F					F	B	F	C	
Approach Delay		111.7						167.7			70.5	
Approach LOS		F						F			E	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.79
Intersection Signal Delay: 119.9 — Intersection LOS: F
Intersection Capacity Utilization 137.3% — ICU Level of Service H

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						250						223
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	389	0	460	569	594	0	0	554	197
Adj. Flow (vph)	0	0	0	519	0	613	759	742	0	0	692	246
Lane Group Flow (vph)	0	0	0	0	519	613	759	742	0	0	692	246
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	27.0	27.0	27.0	32.0	63.0	0.0	0.0	31.0	31.0
Total Split (%)	0%	0%	0%	30%	30%	30%	36%	70%	0%	0%	34%	34%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					23.0	23.0	28.0	59.0			27.0	27.0
Actuated g/C Ratio					0.26	0.26	0.31	0.66			0.30	0.30
v/c Ratio					1.15	1.04	1.38	0.61			1.24	0.39
Uniform Delay, d1					33.5	19.3	31.0	8.9			31.5	2.1
Delay					106.6	60.6	106.0	16.8			130.0	4.9
LOS					F	E	F	B			F	A
Approach Delay					81.7			61.9			97.2	
Approach LOS					F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.38
Intersection Signal Delay: 77.5 Intersection LOS: E
Intersection Capacity Utilization 117.2% ICU Level of Service G

HS

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						261						246
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	769	0	547	891	638	0	0	1139	413
Adj. Flow (vph)	0	0	0	836	0	595	938	672	0	0	1225	449
Lane Group Flow (vph)	0	0	0	0	836	595	938	672	0	0	1225	449
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	31.0	24.0	59.0	0.0	0.0	35.0	35.0
Total Split (%)	0%	0%	0%	34%	34%	34%	27%	66%	0%	0%	39%	39%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					27.0	27.0	20.0	55.0			31.0	31.0
Actuated g/C Ratio					0.30	0.30	0.22	0.61			0.34	0.34
v/c Ratio					1.57	0.90	2.39	0.59			1.91	0.64
Uniform Delay, d1					31.5	16.5	35.0	10.6			29.5	10.3
Delay					209.4	28.1	241.6	19.8			260.5	11.0
LOS					F	C	F	B			F	B
Approach Delay					134.0			149.0			193.6	
Approach LOS					F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.39
Intersection Signal Delay: 160.3 | Intersection LOS: F
Intersection Capacity Utilization 172.7% | ICU Level of Service H

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM Peak
Freeway/Dir of Travel: I-15 Northbound On-Ramp
Junction: I-15 North/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - No Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	766	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	766		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	213		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	897		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.265 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1427 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6284	9600	No
v_{R12}	2324	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

H7

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM Peak
Freeway/Dir of Travel: I-15 Northbound On-Ramp
Junction: I-15 North/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - No Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1304	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	1304		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	362		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%		%
Length	mi	mi		mi
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	1527		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.186 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1003 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6914	9600	No
v_{R12}	2530	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 21.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

+8

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM Peak
Freeway/Dir of Travel: I-15 Southbound On-Ramp
Junction: I-15 South/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - No Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	922	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	922		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	256		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	1080		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.242 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1276 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6350	9600	No
v_{R12}	2356	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Southbound On-Ramp
Junction:	I-15 South/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	2030 - No Project

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	905	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4500		905			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1250		251			v
Trucks and buses	10		10			%
Recreational vehicles	2		2			%
Terrain type:	Level		Level			
Grade		%		%	%	
Length		mi		mi	mi	
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.949		0.949			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5270		1060			pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.245 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1289 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6330	9600	No
v_{R12}	2349	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

H10

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - No Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	848	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		848			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		236			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		989			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2898 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	2898	4400	No
$v_{FO} = v_F - v_R$	4378	9600	No
v_R	989	2000.	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 24.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

#11

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - No Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1315	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1315			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		365			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1534			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3205 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	3205	4400	No
$v_{FO} = v_F - v_R$	3833	9600	No
v_R	1534	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 27.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

H12

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - No Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1077	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1077			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		299			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1257			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 3049 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	3049	4400	No
$v_{FO} = v_F - v_R$	4110	9600	No
v_R	1257	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 26.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

H13

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - NoProject
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1042	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1042			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		289			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1216			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3026 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	3026	4400	No
$v_{FO} = v_F - v_R$	4151	9600	No
v_R	1216	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 25.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

H-14

APPENDIX I
Year 2030 (With Project) Worksheets

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1772	0	0	1824	1583	1770	3504	0	1770	3539	1583
Flt Permitted		0.966			0.979		0.950			0.950		
Satd. Flow (perm)	0	1772	0	0	1824	1583	1770	3504	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				103		8				143
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	402	108	62	116	156	95	44	894	63	74	755	132
Adj. Flow (vph)	437	117	67	126	170	103	48	972	68	80	821	143
Lane Group Flow (vph)	0	621	0	0	296	103	48	1040	0	80	821	143
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	33.0	33.0	0.0	21.0	21.0	21.0	8.0	28.0	0.0	8.0	28.0	33.0
Total Split (%)	37%	37%	0%	23%	23%	23%	9%	31%	0%	9%	31%	37%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		29.0			17.0	17.0	4.0	24.0		4.0	25.6	29.0
Actuated g/C Ratio		0.32			0.19	0.19	0.04	0.27		0.04	0.28	0.32
v/c Ratio		1.08			0.86	0.27	0.61	1.11		1.01	0.82	0.24
Uniform Delay, d1		30.1			36.1	0.0	43.0	32.3		43.0	30.0	0.0
Delay		81.6			49.3	7.0	59.5	86.4		85.7	24.4	6.8
LOS		F			D	A	E	F		F	C	A
Approach Delay		81.6			38.4			85.2			26.7	
Approach LOS		F			D			F			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 59.2 Intersection LOS: E
Intersection Capacity Utilization 97.2% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1>	0	0	<1	1	1	2>	0	1	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1763	0	0	1829	1583	1770	3500	0	1770	3539	1583
Flt Permitted		0.969			0.982		0.950			0.950		
Satd. Flow (perm)	0	1763	0	0	1829	1583	1770	3500	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				52		9				334
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		556			748			915			882	
Travel Time (s)		12.6			17.0			20.8			20.0	
Volume (vph)	315	93	83	77	131	48	84	1071	81	67	1007	307
Adj. Flow (vph)	342	101	90	84	142	52	91	1164	88	73	1095	334
Lane Group Flow (vph)	0	533	0	0	226	52	91	1252	0	73	1095	334
Turn Type	Split			Split		Perm	Prot			Prot		Over
Protected Phases	6	6		2	2		7	4		3	8	6
Permitted Phases						2						
Detector Phases	6	6		2	2	2	7	4		3	8	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	20.0		8.0	20.0	20.0
Total Split (s)	29.0	29.0	0.0	20.0	20.0	20.0	9.0	33.0	0.0	8.0	32.0	29.0
Total Split (%)	32%	32%	0%	22%	22%	22%	10%	37%	0%	9%	36%	32%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		Coord	Coord	Coord	None	None		None	None	None
Act Effct Green (s)		25.0			16.0	16.0	5.0	29.0		4.0	28.0	25.0
Actuated g/C Ratio		0.28			0.18	0.18	0.06	0.32		0.04	0.31	0.28
v/c Ratio		1.07			0.70	0.16	0.93	1.10		0.92	0.99	0.49
Uniform Delay, d1		31.8			34.7	0.0	42.3	30.3		42.8	30.9	0.0
Delay		83.0			38.1	9.7	102.8	82.3		48.5	29.3	4.3
LOS		F			D	A	F	F		D	C	A
Approach Delay		83.0			32.8			83.7			24.7	
Approach LOS		F			C			F			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 55.5 Intersection LOS: E
Intersection Capacity Utilization 94.2% ICU Level of Service E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			300						483			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	430	0	657	0	0	0	0	986	601	400	503	0
Adj. Flow (vph)	538	0	821	0	0	0	0	1232	751	500	629	0
Lane Group Flow (vph)	0	538	821	0	0	0	0	1232	751	500	629	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	29.0	29.0	29.0	0.0	0.0	0.0	0.0	44.0	44.0	17.0	61.0	0.0
Total Split (%)	32%	32%	32%	0%	0%	0%	0%	49%	49%	19%	68%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		25.0	25.0					40.0	40.0	13.0	57.0	
Actuated g/C Ratio		0.28	0.28					0.44	0.44	0.14	0.63	
v/c Ratio		1.09	1.25					1.49	0.77	1.95	0.53	
Uniform Delay, d1		32.5	17.6					25.0	6.6	38.5	9.1	
Delay		89.9	124.3					190.4	15.7	242.7	20.6	
LOS		F	F					F	B	F	C	
Approach Delay		110.7						124.3			118.9	
Approach LOS		F						F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.95
Intersection Signal Delay: 118.8 — Intersection LOS: F
Intersection Capacity Utilization 132.3% — ICU Level of Service H

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	<1	1	0	0	0	0	1	1	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50					50	50	50	50	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.950								0.950		
Satd. Flow (perm)	0	1770	1583	0	0	0	0	1863	1583	1770	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106						280			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		443			610			882			1345	
Travel Time (s)		10.1			13.9			20.0			30.6	
Volume (vph)	469	0	585	0	0	0	0	1276	451	548	1045	0
Adj. Flow (vph)	510	0	636	0	0	0	0	1387	490	596	1136	0
Lane Group Flow (vph)	0	510	636	0	0	0	0	1387	490	596	1136	0
Turn Type	Perm		Perm						Perm	Prot		
Protected Phases		6						4		3	8	
Permitted Phases	6		6						4			
Detector Phases	6	6	6					4	4	3	8	
Minimum Initial (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0	20.0	8.0	20.0	
Total Split (s)	28.0	28.0	28.0	0.0	0.0	0.0	0.0	44.0	44.0	18.0	62.0	0.0
Total Split (%)	31%	31%	31%	0%	0%	0%	0%	49%	49%	20%	69%	0%
Yellow Time (s)	3.5	3.5	3.5					3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5	0.5	0.5	0.5	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Coord	Coord	Coord					None	None	None	None	
Act Effct Green (s)		24.0	24.0					40.0	40.0	14.0	58.0	
Actuated g/C Ratio		0.27	0.27					0.44	0.44	0.16	0.64	
v/c Ratio		1.08	1.27					1.68	0.57	2.17	0.95	
Uniform Delay, d1		33.0	26.0					25.0	7.1	38.0	14.6	
Delay		87.4	136.9					216.6	13.9	200.5	31.5	
LOS		F	F					F	B	F	C	
Approach Delay		114.9						163.7			89.7	
Approach LOS		F						F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2: and 6:SETL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.17
Intersection Signal Delay: 125.0 — Intersection LOS: F
Intersection Capacity Utilization 144.2% — ICU Level of Service H

1-4

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						237						203
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	389	0	539	569	613	0	0	642	207
Adj. Flow (vph)	0	0	0	519	0	719	759	766	0	0	802	259
Lane Group Flow (vph)	0	0	0	0	519	719	759	766	0	0	802	259
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	27.0	27.0	27.0	32.0	63.0	0.0	0.0	31.0	31.0
Total Split (%)	0%	0%	0%	30%	30%	30%	36%	70%	0%	0%	34%	34%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					23.0	23.0	28.0	59.0			27.0	27.0
Actuated g/C Ratio					0.26	0.26	0.31	0.66			0.30	0.30
v/c Ratio					1.15	1.24	1.38	0.63			1.43	0.42
Uniform Delay, d1					33.5	19.8	31.0	9.1			31.5	5.0
Delay					106.6	122.1	105.3	17.1			180.3	6.7
LOS					F	F	F	B			F	A
Approach Delay					115.6			61.0			137.9	
Approach LOS					F			E			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 100.0 Intersection LOS: F
Intersection Capacity Utilization 123.0% ICU Level of Service H

I-5

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	0	0	0	0	<1	1	1	1	0	0	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)				50	50	50	50	50			50	50
Trailing Detector (ft)				0	0	0	0	0			0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Flt Permitted					0.950		0.950					
Satd. Flow (perm)	0	0	0	0	1770	1583	1770	1863	0	0	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						248						232
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		550			849			1345			698	
Travel Time (s)		12.5			19.3			30.6			15.9	
Volume (vph)	0	0	0	769	0	640	891	660	0	0	1243	425
Adj. Flow (vph)	0	0	0	836	0	696	938	695	0	0	1337	462
Lane Group Flow (vph)	0	0	0	0	836	696	938	695	0	0	1337	462
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					2		7	4			8	
Permitted Phases				2		2						8
Detector Phases				2	2	2	7	4			8	8
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				20.0	20.0	20.0	8.0	20.0			20.0	20.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	31.0	24.0	59.0	0.0	0.0	35.0	35.0
Total Split (%)	0%	0%	0%	34%	34%	34%	27%	66%	0%	0%	39%	39%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5			3.5	3.5
All-Red Time (s)				0.5	0.5	0.5	0.5	0.5			0.5	0.5
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				Coord	Coord	Coord	None	None			None	None
Act Effct Green (s)					27.0	27.0	20.0	55.0			31.0	31.0
Actuated g/C Ratio					0.30	0.30	0.22	0.61			0.34	0.34
v/c Ratio					1.57	1.07	2.39	0.61			2.08	0.66
Uniform Delay, d1					31.5	19.5	35.0	10.9			29.5	11.6
Delay					209.4	69.2	241.1	20.1			280.9	12.4
LOS					F	E	F	C			F	B
Approach Delay					145.7			147.0			211.9	
Approach LOS					F			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NWTL and 6:, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.39
Intersection Signal Delay: 170.1 Intersection LOS: F
Intersection Capacity Utilization 178.6% ICU Level of Service H

I-6

TWO-WAY STOP CONTROL SUMMARY

Analyst: bh
Agency/Co.: Darnell
Date Performed: 11/16/2005
Analysis Time Period: AM
Intersection: SR-76/Project Access
Jurisdiction: County SD
Units: U. S. Customary
Analysis Year: 2030+PROJECT
Project ID: 051008 Gregory Cyn
East/West Street: SR-76
North/South Street: Project Access
Intersection Orientation: EW   Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Eastbound			Westbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume			820	98	5	591	
Peak-Hour Factor, PHF			1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR			820	98	5	591	
Percent Heavy Vehicles			--	--	0	--	--
Median Type/Storage		TWLTL			/ 5		
RT Channelized?							
Lanes			1	0	0	1	
Configuration				TR		LT	
Upstream Signal?			No			No	

Minor Street:	Approach	Northbound			Southbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		98		5			
Peak Hour Factor, PHF		1.00		1.00			
Hourly Flow Rate, HFR		98		5			
Percent Heavy Vehicles		0		0			
Percent Grade (%)			0			0	
Flared Approach:	Exists?/Storage			No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		103				
C(m) (vph)		752		391				
v/c		0.01		0.26				
95% queue length		0.02		1.04				
Control Delay		9.8		17.5				
LOS		A		C				
Approach Delay				17.5				
Approach LOS				C				

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: bh
Agency/Co.: Darnell
Date Performed: 11/16/2005
Analysis Time Period: PM
Intersection: SR-76/Project Access
Jurisdiction: County SD
Units: U. S. Customary
Analysis Year: 2030+PROJECT
Project ID: 051008 Gregory Cyn
East/West Street: SR-76
North/South Street: Project Access
Intersection Orientation: EW   Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		915	116	5	1073	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR		915	116	5	1073	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	TWLTL			/ 5		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	116		6			
Peak Hour Factor, PHF	1.00		1.00			
Hourly Flow Rate, HFR	116		6			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		5		122				
C(m) (vph)		682		290				
v/c		0.01		0.42				
95% queue length		0.02		1.99				
Control Delay		10.3		26.1				
LOS		B		D				
Approach Delay				26.1				
Approach LOS				D				

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-15 Northbound On-Ramp
Junction:	I-15 North/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	2030 - With Project

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	776	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4600	776		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1278	216		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5387	909		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.263 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1419 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6296	9600	No
v_{R12}	2328	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

1-9

Merge Analysis

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-15 Northbound On-Ramp
Junction:	I-15 North/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	2030 - With Project
Description:	051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	1316	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1316			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		366			v
Trucks and buses	10		10			%
Recreational vehicles	2		2			%
Terrain type:	Level		Level			
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.949		0.949			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5387		1541			pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.184 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 994 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6928	9600	No
v_{R12}	2535	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

```
Analyst:                    bh
Agency/Co.:                 Darnell
Date performed:             11/17/2005
Analysis time period:       AM Peak
Freeway/Dir of Travel:      I-15 Southbound On-Ramp
Junction:                   I-15 South/State Route 76
Jurisdiction:               County SD/Caltrans
Analysis Year:              2030 - With Project
Description:  051008 - Gregory Canyon

_______________________________Freeway Data_______________________________

Type of analysis                              Merge
Number of lanes in freeway                    4
Free-flow speed on freeway                    70.0          mph
Volume on freeway                             4500          vph

_______________________________On Ramp Data_______________________________

Side of freeway                               Right
Number of lanes in ramp                       1
Free-flow speed on ramp                       35.0          mph
Volume on ramp                                1000          vph
Length of first accel/decel lane              500           ft
Length of second accel/decel lane                           ft

______________________Adjacent Ramp Data (if one exists)__________________

Does adjacent ramp exist?                     No
Volume on adjacent Ramp                                     vph
Position of adjacent Ramp
Type of adjacent Ramp
Distance to adjacent Ramp                                   ft

___________________Conversion to pc/h Under Base Conditions_______________

Junction Components                       Freeway     Ramp       Adjacent
                                                                 Ramp
Volume, V (vph)                           4500        1000                 vph
Peak-hour factor, PHF                     0.90        0.90
Peak 15-min volume, v15                   1250        278                  v
Trucks and buses                          10          10                   %
Recreational vehicles                     2           2                    %
Terrain type:                             Level       Level
    Grade                                       %           %              %
    Length                                      mi          mi             mi
Trucks and buses PCE, ET                  1.5         1.5
Recreational vehicle PCE, ER              1.2         1.2
Heavy vehicle adjustment, fHV             0.949       0.949
Driver population factor, fP              1.00        1.00
Flow rate, vp                             5270        1171                 pcph

________________________Estimation of V12 Merge Areas_____________________

                  L   =            (Equation 25-2 or 25-3)
                   EQ
                  P   =    0.231   Using Equation  4
                   FM
                  v  = v  (P  ) =  1216   pc/h
                   12   F   FM

_____________________________Capacity Checks______________________________

                          Actual       Maximum        LOS F?
     v                    6441         9600           No
      FO
     v                    2387         4600           No
      R12

________________Level of Service Determination (if not F)________________

Density, D = 5.475 + 0.00734 v  + 0.0078 v   - 0.00627 L   =   20.4    pc/mi/ln
                              R            12           A
Level of service for ramp-freeway junction areas of influence  C
```

Merge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM Peak
Freeway/Dir of Travel: I-15 Southbound On-Ramp
Junction: I-15 South/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - With Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4500	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	997	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent Ramp		vph
Position of adjacent Ramp		
Type of adjacent Ramp		
Distance to adjacent Ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4500	997		vph
Peak-hour factor, PHF	0.90	0.90		
Peak 15-min volume, v15	1250	277		v
Trucks and buses	10	10		%
Recreational vehicles	2	2		%
Terrain type:	Level	Level		
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		
Heavy vehicle adjustment, fHV	0.949	0.949		
Driver population factor, fP	1.00	1.00		
Flow rate, vp	5270	1168		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.231 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1218 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6438	9600	No
v_{R12}	2386	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	AM
Freeway/Dir of Travel:	I-15 Northbound Off
Junction:	I-15 North Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	
Description:	051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	926	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		926			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		257			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1080			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2949 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	2949	4400	No
$v_{FO} = v_F - v_R$	4287	9600	No
v_R	1080	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 25.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Diverge Analysis

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: PM
Freeway/Dir of Travel: I-15 Northbound Off
Junction: I-15 North Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - With Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1407	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1407			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		391			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1642			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} =$ 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} =$ 3266 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	3266	4400	No
$v_{FO} = v_F - v_R$	3725	9600	No
v_R	1642	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D =$ 27.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Analyst: bh
Agency/Co.: Darnell
Date performed: 11/17/2005
Analysis time period: AM
Freeway/Dir of Travel: I-15 Southbound Off
Junction: I-15 South Off/State Route 76
Jurisdiction: County SD/Caltrans
Analysis Year: 2030 - With Project
Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1087	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1087			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		302			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1268			pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3055 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	3055	4400	No
$v_{FO} = v_F - v_R$	4099	9600	No
v_R	1268	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 26.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

1-15

Analyst:	bh
Agency/Co.:	Darnell
Date performed:	11/17/2005
Analysis time period:	PM
Freeway/Dir of Travel:	I-15 Southbound Off
Junction:	I-15 South Off/State Route 76
Jurisdiction:	County SD/Caltrans
Analysis Year:	2030 - With Project

Description: 051008 - Gregory Canyon

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	70.0	mph
Volume on freeway	4600	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	1054	vph
Length of first accel/decel lane	500	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	No	
Volume on adjacent ramp		vph
Position of adjacent ramp		
Type of adjacent ramp		
Distance to adjacent ramp		ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	4600		1054			vph
Peak-hour factor, PHF	0.90		0.90			
Peak 15-min volume, v15	1278		293			v
Trucks and buses	10		10			%
Recreational vehicles	0		0			%
Terrain type:	Level		Level			
Grade	0.00	%	0.00	%		%
Length	0.00	mi	0.00	mi		mi
Trucks and buses PCE, ET	1.5		1.5			
Recreational vehicle PCE, ER	1.2		1.2			
Heavy vehicle adjustment, fHV	0.952		0.952			
Driver population factor, fP	1.00		1.00			
Flow rate, vp	5367		1230			pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 25-8 or 25-9)

$P_{FD} = 0.436$ Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3034$ pc/h

Capacity Checks

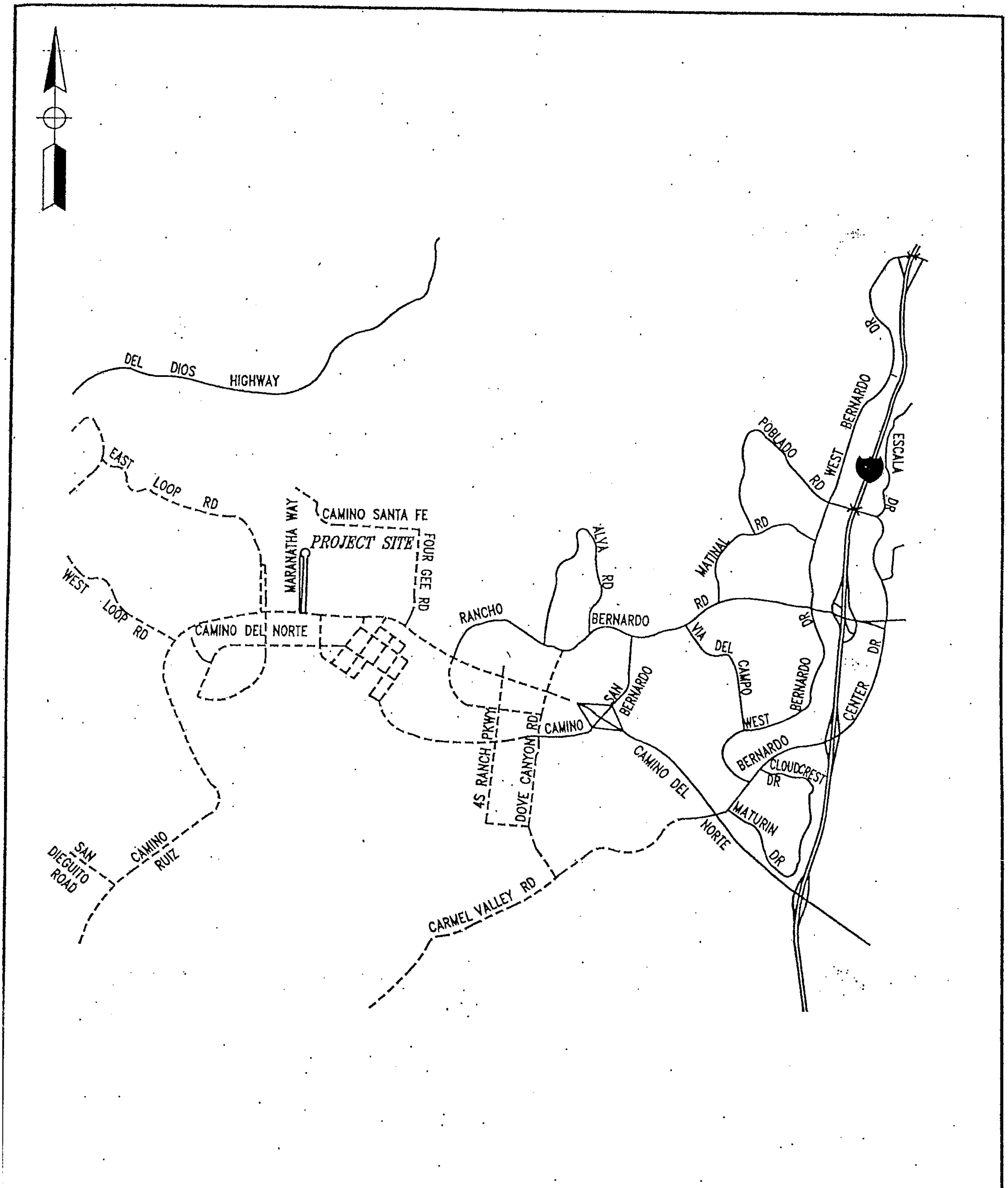
	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5367	9600	No
v_{12}	3034	4400	No
$v_{FO} = v_F - v_R$	4137	9600	No
v_R	1230	2000	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 25.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

APPENDIX J
Maranatha School Excerpts
Traffic Signal Warrants

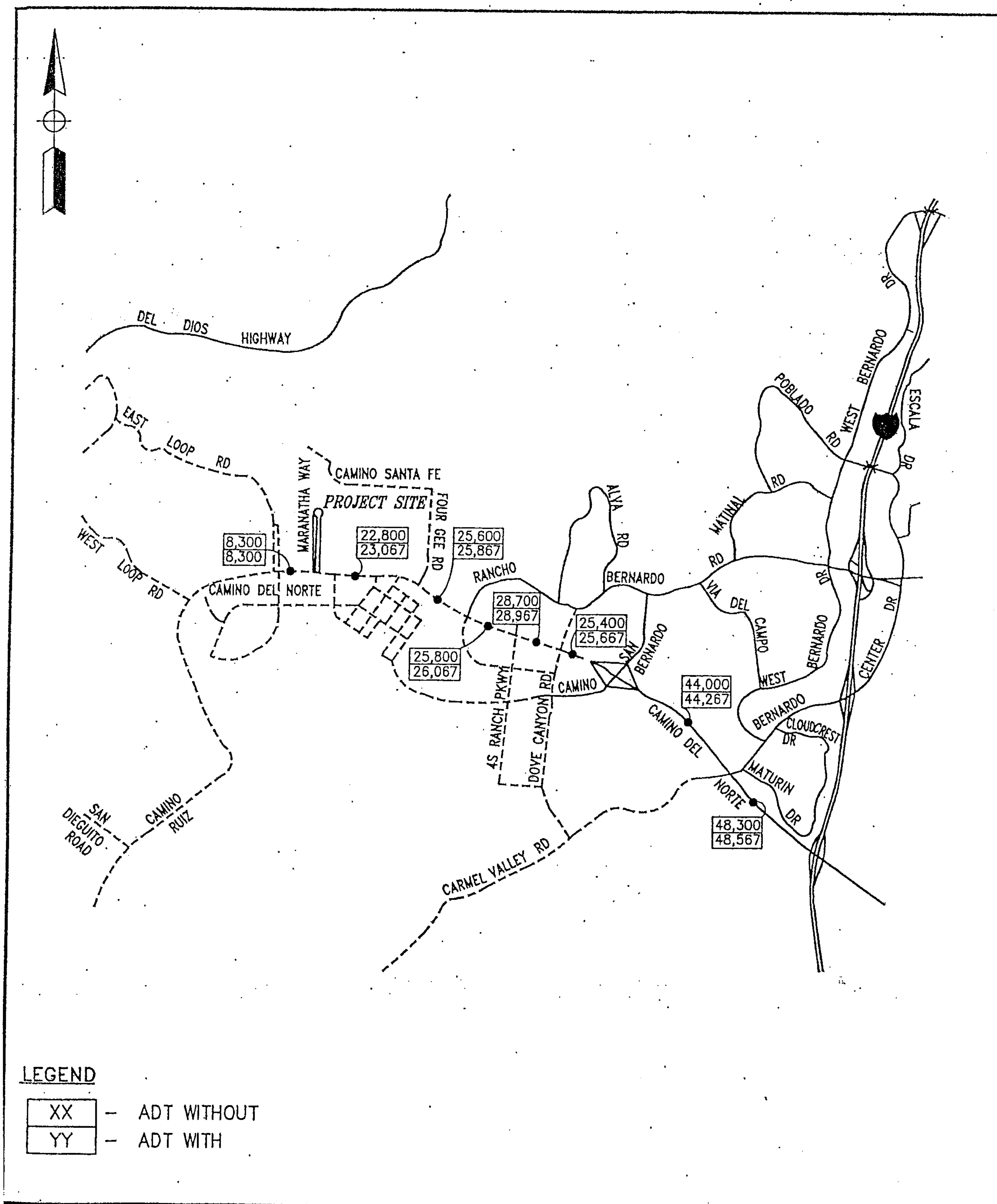


Darnell & ASSOCIATES, INC.

051008AA.dwg 5-09-06 SN

(J1)

FIGURE 1
PROJECT LOCATION



Darnell & ASSOCIATES, INC.

051008AA.dwg 5-09-06 SN

FIGURE 2

BUILDOUT TRAFFIC WITHOUT & WITH PROJECT

- Maranatha School and Church Impact Study

J3

05/008

Maranatha School and Church Traffic Impact Study

File Copy

July 6, 2001

Prepared By:

Katz, Okitsu & Associates
Traffic Engineers and Transportation Planners

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Harper Construction
2241 Kettner Boulevard Suite 300
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Prepared for:

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San Diego County
DEPT. OF PLANNING & LAND USE

REPLACEMENT

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Table 11
Summary of Buildout Intersection Performance Without and With Project

(Bold Type Indicates a Significant Project Impact that Requires Mitigation)

Intersection	Without Project		With Project			
	Average Intersection Delay (sec.)	Level of Service	Average Intersection Delay (sec.)	Level of Service	Increase in Delay	Significant?
Weekday AM Peak Hour						
Rancho Bernardo Rd at I-15 NB	16.3	B	16.4	B	0.01	N
Rancho Bernardo Rd at I-15 SB	23.9	C	24.4	C	0.05	N
Rancho Bernardo Rd at West Bernardo Dr	34.5	C	34.7	C	0.02	N
Rancho Bernardo Rd at Via del Campo	32.7	C	33.6	C	0.90	N
Rancho Bernardo Rd at Camino San Bernardo	28.7	C	28.9	C	0.02	N
Camino del Norte at I-15 NB	33.6	C	39.1	D	5.50	Y
Camino del Norte at I-15 SB	40.2	D	43.8	D	3.6	Y
Camino del Norte at Bernardo Center Dr	33.9	C	35.0	D	1.1	N
Camino del Norte WB at Camino San Bernardo	18.6	B	19.1	B	0.5	N
Camino del Norte EB at Camino San Bernardo	23.2	C	23.2	C	0.0	N
Camino del Norte at Rancho Bernardo Road	29.1	C	32.6	D	3.5	Y
Camino del Norte at Four Gee Road/C Street	31.6	C	35.4	D	3.8	Y
Camino del Norte at Street B	16.5	B	15.5	B	-1.0	N
Camino Ruiz at Street A	10.0	B	13.8	B	3.8	N
Camino del Norte at Project Driveway	5.3	A	40.3	D	35.0	Y
Camino del Norte at East Loop Road	18.2	B	21.3	C	3.1	N
Camino del Norte at West Loop Road	16.1	B	15.2	B	-.09	N
Camino Ruiz at North Village Drive	26.3	C	24.9	C	-1.4	N
Camino Ruiz at San Dieguito Road	14.6	B	14.4	B	-0.2	N

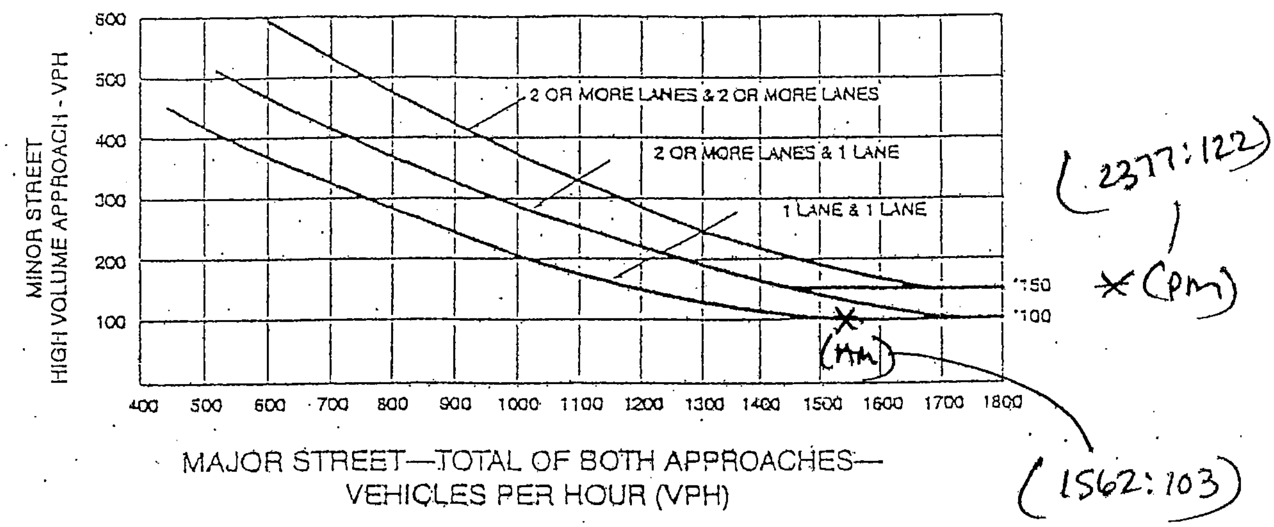
Note: Buildout volumes were taken from the Black Mountain Ranch Subarea 1 Plan, 1998. Where more vehicles are added to a movement with a lower delay (e.g. turn movements), the overall sum results in a lower average delay.

Table 11 continued
Summary of Buildout Intersection Performance Without and With Project
(Bold Type Indicates a Significant Project Impact that Requires Mitigation)

Intersection	Without Project		With Project			
	Average Intersection Delay (sec)	Level of Service	Average Intersection Delay (sec)	Level of Service	Increase in Delay	Significant?
Weekday AM Peak Hour						
Rancho Bernardo Rd at I-15 NB	78.2	E	77.9	E	-0.3	Y
Rancho Bernardo Rd at I-15 SB	29.9	C	29.5	C	-0.4	N
Rancho Bernardo Rd at West Bernardo Dr	41.1	D	41.0	D	-0.1	N
Rancho Bernardo Rd at Via del Campo	26.6	C	26.5	C	-0.01	N
Rancho Bernardo Rd at Camino San Bernardo	29.8	C	29.7	C	-0.01	N
Camino del Norte at I-15 NB	40.9	D	37.9	D	-3.0	N
Camino del Norte at I-15 SB	34.1	C	32.8	C	-1.3	N
Camino del Norte at Bernardo Center Dr	40.8	D	39.6	D	-1.2	N
Camino del Norte WB at Camino San Bernardo	15.6	B	15.4	B	-0.2	N
Camino del Norte EB at Camino San Bernardo	25.0	C	24.9	C	-0.1	N
Camino del Norte at Rancho Bernardo Road	40.0	D	40.2	D	0.2	N
Camino del Norte at Four Gee Road /C Street	66.7	E	60.1	E	-6.6	N
Camino del Norte at Street B	18.5	B	19.1	B	0.6	N
Camino Ruiz at Street A	17.7	B	18.3	B	0.6	N
Camino del Norte at Project Driveway	13.6	B	2.2	A	-11.4	N
Camino del Norte at East Loop Road	18.3	B	17.2	B	-1.1	N
Camino del Norte at West Loop Road	14.2	B	14.4	B	0.2	N
Camino Ruiz at North Village Drive	36.7	D	36.3	D	-0.4	N
Camino Ruiz at San Dieguito Road	17.3	B	17.3	B	0.0	N

Note: Buildout volumes were taken from the Black Mountain Ranch Subarea 1 Plan, 1998. Where more vehicles are added to a movement with a lower delay (e.g. turn movements), the overall sum results in a lower average delay.

Figure 4C-3. Warrant 3, Peak Hour



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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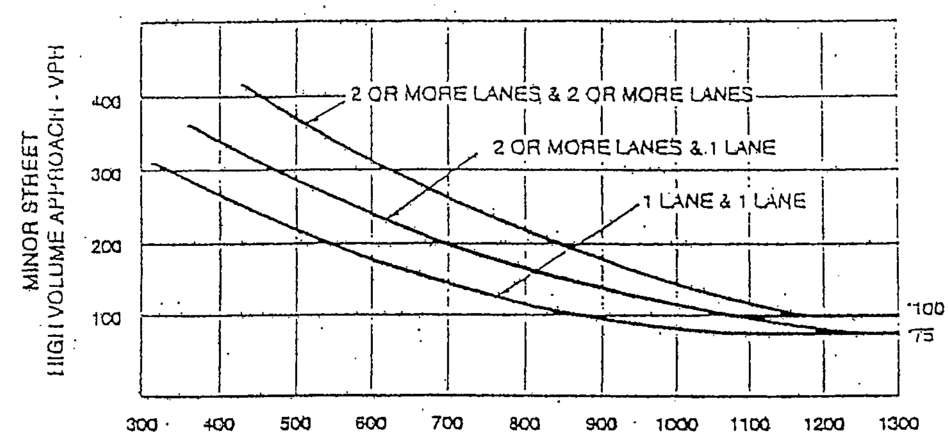
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Satisfied? Yes [X] No [ ]

Street	Approach	Approach Lanes		Hourly Volume			
		One	2 or More	Am	Pm		
SR-76	Major Street - (Total of both Approaches)			1562	2377		100%
PROJECT	Minor Street - (Highest Approach)			103	122		100%

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Table 4C-101. Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

(Based on Estimated Average Daily Traffic - See Note)

	Minimum Requirements EADT	
URBAN .... X ... RURAL		
1A - Minimum Vehicular Traffic Satisfied 80% Not Satisfied ____	Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Number of lanes for moving traffic on each approach	Urban 23000 Rural	Urban 2085 Rural
Major Street 1 ..... X — Minor Street 1 X	8,000 — 5,600	2,400 — 1,680
Major Street 2 or More — Minor Street 1	9,600 — 6,720	2,400 — 1,680
Major Street 2 or More — Minor Street 2 or More	9,600 — 6,720	3,200 — 2,240
Major Street 1 — Minor Street 2 or More	8,000 — 5,600	3,200 — 2,240
1B - Interruption of Continuos Traffic Satisfied X Not Satisfied ____	Vehicles Per Day on Major Street (Total of Both Approaches) 23000	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) 2085
Number of lanes for moving traffic on each approach	Urban — Rural	Urban — Rural
Major Street 1 ..... X — Minor Street 1 X	12,000 — 8,400	1,200 — 850
Major Street 2 or More — Minor Street 1	14,400 — 10,080	1,200 — 850
Major Street 2 or More — Minor Street 2 or More	14,400 — 10,080	1,600 — 1,120
Major Street 1 — Minor Street 2 or More	12,000 — 8,400	1,600 — 1,120
1A&B - Combinations Satisfied ____ Not Satisfied ____ No one warrant satisfied, but following warrants fulfilled 80% or more.......... 80 (1) 100 (2)	2 Warrants	2 Warrants

80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

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NEAR TERM CUMULATIVE

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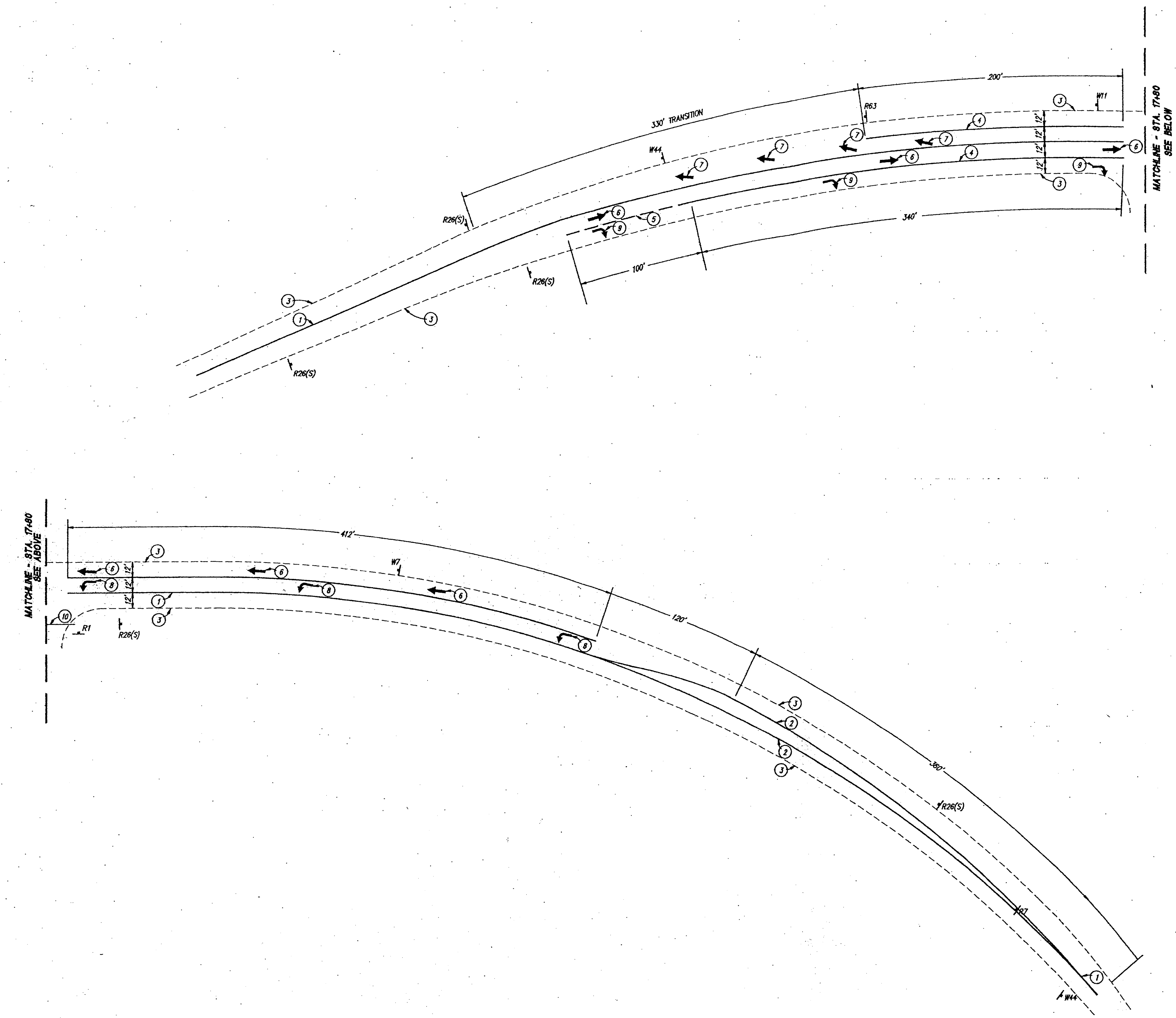
APPENDIX K
Signing & Striping Plan



GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ALL SIGNING AND STRIPING.
2. SIGNING, STRIPING AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST CALTRANS TRAFFIC MANUAL, CALTRANS STANDARD SPECIFICATIONS (DATED JULY 1992), THESE PLANS, AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
3. ALL SIGNING AND STRIPING IS SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
4. ALL SIGNS AND STRIPING SHALL BE REFLECTIVE PER CALTRANS SPECIFICATIONS. STRIPING SHALL BE REPAINTED TWO WEEKS AFTER INITIAL PAINTING. SIGNING SHALL USE 3M HIGH INTENSITY SHEETING OR EQUAL.
5. EXACT LOCATION OF STRIPING AND LIMIT LINES SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
6. CONTRACTOR SHALL REMOVE ALL CONFLICTING PAINTED LINES, MARKINGS, AND PAVEMENT LEGENDS BY SANDBLASTING. DEBRIS SHALL BE PROMPTLY REMOVED BY CONTRACTOR.
7. ALL PAVEMENT LEGENDS SHALL BE CALTRANS STENCILS.
8. ALL SIGNS SHALL BE STANDARD SIZE SHOWN IN CALTRANS TRAFFIC MANUAL UNLESS OTHERWISE NOTED.
9. FIRE HYDRANT PAVEMENT MARKERS SHALL CONFORM TO THE LATEST CALTRANS TRAFFIC MANUAL AND SAN DIEGO REGIONAL STANDARD DRAWING M-19.
10. EXISTING SIGNS REMOVED BY THE CONTRACTOR SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
11. ALL SIGNS SHOWN ON THESE PLANS SHALL BE NEW SIGNS PROVIDED AND INSTALLED BY THE CONTRACTOR.
12. ALL EXISTING SIGNS TO REMAIN UNLESS SHOWN OTHERWISE.
13. LANE WIDTHS INDICATED ARE THE MINIMUM WIDTHS AT LOCATIONS INDICATED. MEASURED FROM CENTER TO CENTER OF STRIPING CONFIGURATION.

STRIPING LEGEND

(1) NO PASSING ZONE-2 DIRECTIONS PER CALTRANS A20A, DETAIL 22
(2) MEDIAN ISLAND PER CALTRANS A20B, DETAIL 29
(3) RIGHT EDGELINE PER CALTRANS A20B, DETAIL 27B
(4) CHANNELIZING LINE PER CALTRANS A20D, DETAIL 38
(5) LANE DROP AT INTERSECTION PER CALTRANS A20C, DETAIL 37B
(6) TYPE I (7.32 m) ARROW PER CALTRANS A24A
(7) TYPE VI (L) ARROW PER CALTRANS A24A
(8) TYPE IV (L) ARROW PER CALTRANS A24A
(9) TYPE IV (R) ARROW PER CALTRANS A24A
(10) CROSSWALK AND LIMIT LINE PER CALTRANS A24E

SIGNAGE LEGEND

R1	STOP SIGN
R26(S)	NO STOPPING ANYTIME SIGN
R63	DO NOT PASS SIGN
W7	SIDE ROAD SIGN
W11	PAVEMENT WIDTH TRANSITION SIGN
W44	TWO-WAY TRAFFIC SIGN

GRAPHIC SCALE
0' 20 40 60 80 120 160
10 30
SCALE 1"= 40'

DATE: 03/15/05 TIME: 1:33 p.m.	NO.	BY	DATE
SERVER: SDS1 SERVICE: SDS1			
PATH: N:\sd0030\Cadd\Highway 76\IP\			
DRAWING NAME: 76IP07.DWG			
PLOTTING VIEW: PV			
DESIGNER: RST PROJ. MGR: JRH			

REVISIONS:

XREFS: PRPN, TBBASE, P...

CAUTION: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

NOLTE
BEYOND ENGINEERING
15090 AVENUE OF SCIENCE, SUITE 101 SAN DIEGO, CA. 92128
858.385.0500 TEL 858.385.0400 FAX WWW.NOLTE.COM

HIGHWAY 76 IMPROVEMENTS
SIGNING AND STRIPING
STA. 10+00 TO STA. 27+00 P.M. 20.6

PREPARED FOR: GREGORY CANYON, LTD.

DATE SUBMITTED:

SHEET NUMBER 7 OF 7 SHEETS

SCALE
VERTICAL: 1"= 8'
HORIZONTAL: 1"= 40'
0 10 20 40 60

JOB NUMBER SD0030